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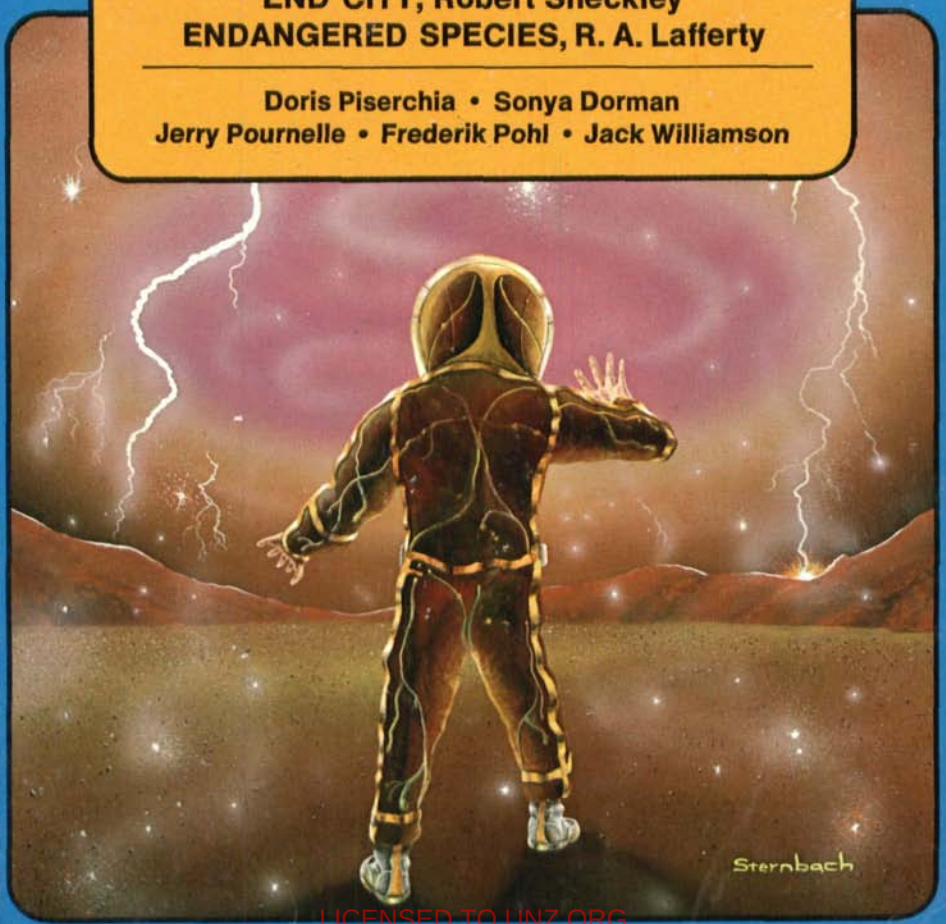

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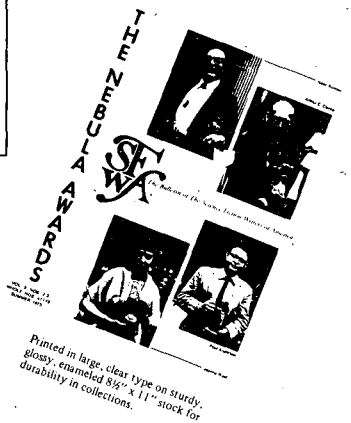

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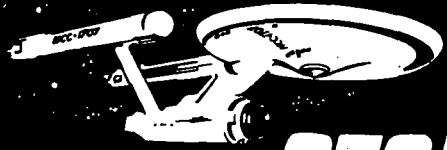

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Galaxy SCIENCE FICTION MAGAZINE

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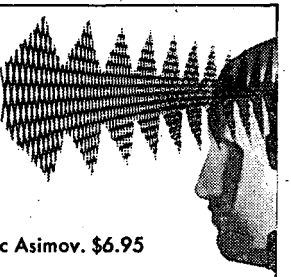

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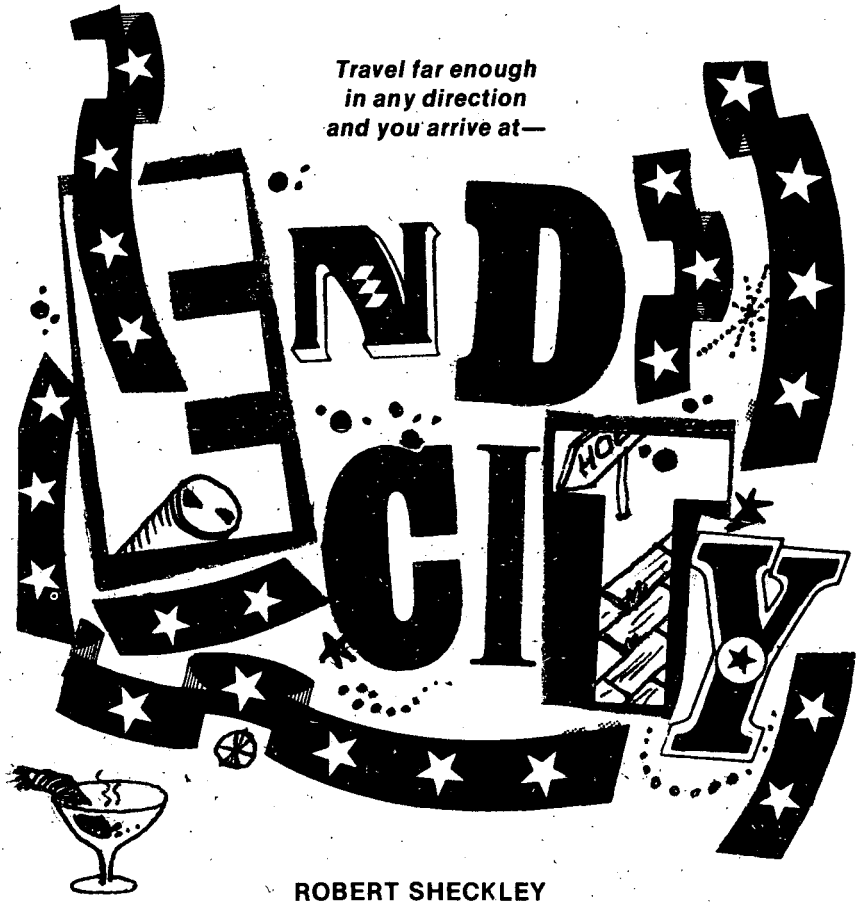

ROBERT SHECKLEY

THE way it can happen is like this: You're leaning back in your first-class seat on Fat Cat Spacelines with a cigar in your face and a glass of champagne in your hand, going from Depredation City on Earth to Spoilsville Junction on Arcturus XII. Magda will be waiting for you just behind the customs barrier and the party in your honor will be going full swing at the Ultima Hilton. And you realize that, after a lifetime of struggle, you're finally rich, sexy, successful and respected. Life is like a ball of chicken liver, rich and tasty and dripping with grease. You've worked a long dirty time to get where you are and you're ready at last to enjoy it.

Just at this moment the landing sign flashes on.

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You say to the stewardess, "Tell me, pretty one, what is going on?"

"We're putting down at End City," she tells you.

"But that wasn't scheduled. Why are we landing there?"

She shrugs. "That's where the ship's computer took us and now we have to land here."

"Now look," you say sternly, "I was assured by my very good friend, J. Williams Nash, the President of this Line, that there would be no unscheduled stops."

"End City terminates all previous assurances," she tells you. "Maybe you didn't want to come here, but you sure as hell have arrived."

You fasten your safety belt and think—just my stupid luck. Sweat your ass off all your life, and just when you're ready to have a little fun, up comes End City.

IT's pretty easy to get into End City. All you have to do is show up. Park your spaceship in the junkyard. There's nothing to sign. Don't worry about a thing. Come around later and meet the boys.

THE Quicksilver Kid swaggers up and asks, "Hey, what do you guys do for kicks around here?"

Mort the Snort says, "We take drugs like Hope-'74."

"What is the effect of Hope-'74?"

"It makes you think you got a future."

The Quicksilver Kid looks wistful. "Man, I gotta score me some of that stuff."

MEET Sweet Lucy, girl of a thousand bodies, all gross.

"I takes myself down to the Celestial Body Shop nearly every Monday and each time I'm determined to get myself a real pretty body—you know the kind I mean, *pretty*. But each time it's like this compulsion comes over me and I pick a big fat saggy number just like I always had. If I could ever lick that weirdo compulsion I'd be in real good shape."

Dr. Bernstein's comment: "Her hangup is her salvation. Down chicks always run true to form. Gentlemen, kick her as you leave. She digs the attention."

GIARDANO had done a lot of traveling, but he never did get far. "It's simple truth to say that this galaxy is just like the inside of my head. The farther you go, the less you see. Been to Acmena IV—looks just like Arizona. Sardis VI is a ringer for Quebec and Omeone VI is a duplicate of Marie Byrd's Land."

"What does End City look like?"

"If I didn't know better," Giardano says, "I'd think I was back home in Hoboken."

IN END CITY they have to import everything. They import cats and cockroaches, garbage bags and garbage, cops and crime statistics.

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They import spoiled milk and rotten vegetables, blue suede and orange taffeta, they import orange peels, instant coffee, Volkswagen parts, Champion spark plugs. They import dreams and nightmares. They import you and me.

"But what's it all for?"

"That's a stupid question. You might as well ask what reality is for."

"Well—what *is* reality for?"

"LOOK me up any time. I live at 000 Zero Street, at the intersection of Minus Boulevard, just across from Null Park."

"Is that address supposed to have a symbolic meaning?"

"No, man, it's just where I live."

NOBODY can afford the necessities in End City. But luxuries are available for everyone. Ten thousand tons of Chincoteague oysters are distributed every week, free. But you can't cop cocktail sauce for love or money.

COLLOQUY in Limbo Lane:

"Good day, young man. Are you still caught up in the ways-means fallacy?"

"Guess I am, Professor."

"Thought as much. Good day, young man."

"Who was that?"

"That was the professor. He always asks about the ways-means fallacy."

"What does it mean?"

"Don't know."

"Why don't you ask him?"

"Don't care."

DR. BERNSTEIN says: "Monism postulates that there's only one thing—dualism says there are two things. No matter which is true, you still haven't got much to work with."

"Hey!" says Johnny Cadenza. "Maybe that explains why everything around here tastes either like chili or chow mein."

GIARDANO opens a pocket notebook and tries to count all the Main Streets he's walked down. Mort the Snort shoots pure Sealtest ice cream and waits for the hit. The Quicksilver Kid lays out a game of solitaire, but every card is an eight of diamonds. Sweet Lucy bites into a Mars Bar and tastes sunlight, taffeta, a barking puppy.

Dr. Bernstein looks back at the old stars, the old trips, all used up now, all finished. He looks ahead at the blackness of the gulf, the big leap *into nothingness*. He sighs, takes Lucy by the hand. They dance.

You come hesitantly forward at last, clear your throat, say, "Excuse me but this is all some kind of mistake, isn't it? I mean, I shouldn't be here at all."

"You're in the right place," Bernstein says. "Welcome to End City." He doesn't even bother to laugh at you. ✱

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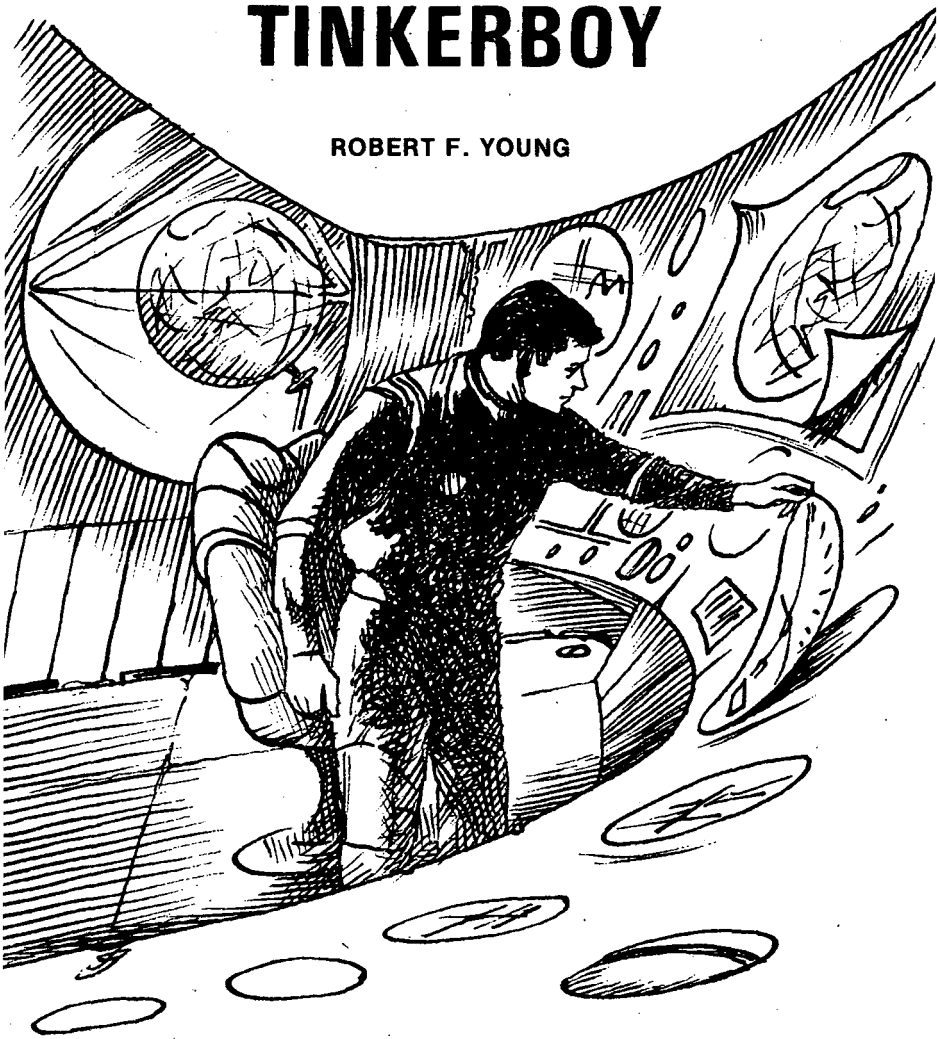
He saw the truth but could not change it. No one could— except the

TINKERBOY

ROBERT F. YOUNG



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I

WHAT Harris (Andrew, Lt. Com., USN) later referred to on his notetapes as "the metamorphosis of my milieu" began when the *Starquest* was less than a day distant from her first Mars orbit. As was his custom, he had stepped into the drive room to make his daily inspection of the engines. The actual works were largely hidden from the eye of the beholder by heavy shielding and could be checked out realistically only by means of the monitor in the control room, but viewing the setup at first hand reassured Harris in a way that seeing it on a screen could not. This time around, however, he wasn't in the least reassured—quite the contrary.

The drive had vanished utterly. In its place, lying side by side between two huge concave braces, were two long cylinders that he at first took to be a pair of massive conduits but which, when he read the lettering on the black and gold surface of the nearer one, turned out to be a pair of alkaline Duracell 1.5-volt batteries, size AA.

To complete his mental devastation, the room's deck, ceiling and bulkheads had transmuted, since his last look-in, from steel plating to a green plastic material. A strange humming noise was emanating from below the deck, while an even stranger whirring sound was coming from beyond the stern firewall.

Shaken, he backed out of the room, instinctively reaching for the door. If he could shut the insane scene from his sight, perhaps it would go away. He found himself, however, thwarted—for the door no longer existed.

Although disliked by his fellow astronauts, ostensibly for a streak of cruelty he was not always successful in concealing but actually for his intellectualism, Harris had been the International Space Agency's overwhelming choice for the first one-man Mars mission. He was self-disciplined, emotionally stable and resourceful—the sort of person least likely to lose his cool no matter how bizarre the circumstances. He did not lose it now.

After standing quietly in the *Starquest's* aft corridor (*that* had transmuted to plastic also, grown longer and undergone several other changes) till his heartbeat subsided to nearly normal, he reentered the drive room. The two Brobdingnagian batteries were lying "head to foot," their positive and negative terminals respectively making contact with vertical metal arms protruding through slots in the deck. Since there was no way Harris could get below—at least none that he knew of—he had to surmise what sort of energy converter was installed there. His mind balked. Small wonder. How in hell could an electric motor powered by two 1.5-

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volt batteries (assuming such a set-up had been in effect all along) have freed the *Starquest* from the moon's gravitic pull and have brought her to the verge of her first Mars orbit mere months after lift-off? Moreover, what means of propulsion did the theoretical motor employ?

A propeller?

LOOKING neither to left nor right, he hurried forward to the control room and homed in on the radio. He fumbled for the toggle switch. "*Starquest* to base—*Starquest* to base—"

Then he stood there, feeling slightly foolish. And slightly terrified. For the control panel, of which the radio was a part, had turned into the same green plastic material he had seen in the drive room and the corridor. Not only that—the panel had moved. And the control room itself—bulkheads, deck and ceiling—had transmuted to plastic and grown larger. Or perhaps it only seemed larger because most of its more sophisticated paraphernalia had ceased to exist even in plastic form.

Harris sagged into the control chair—fortunately it was still in the same place—and stared at the levers, switches, gauges, dials and screens arrayed before him. The levers and switches were realistic, though immovable, and the gauges and the dials had numbered faces pasted on them. When he had glanced at the ship's chronometer some fifteen minutes ago it had registered 1620 hours—the printed face of its plastic counterpart registered 0600 hours. Worse, he had no timepiece of his own to dispute it.

He gazed at the monitor screens. They had pictures painted on them. One "showed" what looked like a subatomic drive, another what looked like a grav generator, another what looked like an oxygen reconverter, and still another an apparatus that vaguely suggested a meteor deflector.

Harris returned his eyes to the picture of the oxygen reconverter. He took a deep breath. Another. The air *seemed* to be okay.

At length his gaze stole over to the forward bulkhead where the viewscreen had been. It was still in approximately the same place. It had transmuted to plastic and had a picture of Mars painted on it.

FOR a moment *deja vu* overwhelmed him. Then he forced himself to check out the ship—or at least those parts of it that were accessible to him—from stem to stern. It had been cast or stamped out of plastic in two lateral sections—then the two sections had been fused (glued?) together. (Harris didn't believe his eyes, but this was what they told him.) The ship's appointments and equipment, except for the batteries and, presumably, the theoretical electric motor, had been part of the

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original pattern—or die—from/ with which the two sections had been cast, or stamped.

There were other differences. The ship had become considerably larger and its appointments and equipment, when duplicated, were differently styled and no longer located in quite the same places. While the control room and the drive cubicle still occupied approximately the same sections, the tiny cabin that contained his bunk had exchanged places with the lock—and the little lavatory, formerly adjacent to his cabin, had exchanged places with the suit locker.

Oddly, the new arrangement only served to intensify his *deja vu.* But *was* what he was experiencing *deja vu?* Hadn't he, long long ago, in a different way, experienced all this before?

Formerly the ship's illumination had been supplied by strategically placed fluorescent tubes. Now it came from strategically applied daubs of phosphorescent paint. There was no longer a heating system—or if there was, he could find no evidence of it—yet the interior temperature was in the upper seventies.

But while there was light and heat and air, there was no food. Oh, there was a galley, all right, but no one had thought to stock it. In addition to its empty shelves it contained a quaint little plastic sink and two cute little plastic water taps. The trouble with the taps was, he couldn't turn them on—but even if he'd been able to his lot wouldn't have been improved. A subsequent search for the water reservoir and the recycling system revealed both to be no longer existent.

He didn't enter the drive room again—he didn't have the heart. Anyway, he knew that nothing had changed: the humming of the hypothetical electric motor and the whirring of the hypothetical propeller were audible throughout the ship. Occasionally sounds came from *outside* the ship—distant muffled crashes, strange long-drawn-out thunderings . . .

After taking an inventory of his clothing and the contents of his pockets and finding nothing changed and everything still there, he returned disconsolately to the control room. There, he sat powerlessly in the control chair, staring at the painted picture of Mars. *What delightful white polar caps you have, my dear,* he thought. *What a delightful orange complexion! And those charming little lines that crisscross one another so quaintly—are they your famous canals?*

If only there were some way he could see the *real* Mars. If only there were portholes in the hull . . . But there were, weren't there? Ten of them. Five on either side . . .

Throughout his "tour of inspection"—and even before—he had had the feeling that every aspect of the ship was the same as it had

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always been—that nothing really changed until he looked at it. Until he remembered it. Thus, while he was startled, he was not truly surprised when, glancing at the section of the starboard hull that the control-panel abutted, he saw . . . remembered? . . . a porthole.

Looking through it, he saw "Mars." It was the same orange hue as its two-dimensional sister on the viewscreen, had just as many canals, was tilted the proper degree on its axis and was resting on what appeared to be a stilt.

Bright bluish radiance bathed it from above and yellowish light from afar. Despite its distance from the *Starquest* it seemed no more than a stone's throw away. Orbiting it at perceptible velocities were two ping-pong ball-like moonlets. Around and around and around they went.

Around and around and around.

From his notetapes:

". . . can be but three possible explanations for the phenomena I have just described—that constitute the metamorphosis of my milieu: 1) the utterly absurd one that the metamorphosis is the result of a photon storm through which the *Starquest* is passing and of which the detectors are apparently unaware; 2) the equally absurd one that no metamorphosis occurred, that for a reason or reasons unknown to me I am perceiving reality divested of its usual

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Old business first: a thousand and then some apologies to T. J. Bass for confusing the name of his new BB novel in the February ad. The real title is THE GODWHALE; Rorqual Maru is the "heroine," and *she's* quite a gal. Hope you found it on sale despite our editorial boggling of the title. Anyway, it's a jolly good book and a delightful read. Look for it. And if all THE GODWHALEs have been bought up, send for it—you'll love it.

The big news of the month is UNDER PRESSURE, Frank Herbert's classic sf novel of an incredible 21st-century energy crisis! Talk about relevance! When the book was first published (original title: *The Dragon in the Sea* back in 1955), it was critically acclaimed by major reviewers. Said *The New York Times*: "In this blend of speculation and action, Mr. Herbert has created a novel that ranks with the best of modern science fiction. Here is a sea story of an imaginary war that comes very close to matching—in suspense, action and psychic strain—any chronicle of real war by C. S. Forester or Herman Wouk."

In the world of the future that Herbert postulated, the U.S.A. all but used up its oil supply (sound familiar?). A new source must be found. Atomic subtugs begin stealing supplies from underwater deposits in enemy territory. Problem: none of the twenty tugs sent out on a mission have returned with the desperately needed oil. Ensign John Ramsey of BuPsych is planted aboard the *Fenian Ram SI881* as an electronics officer. His assignment—find the saboteur in the four-man crew and bring back the oil. The review of this novel that we liked best said: "This is a fictional story of the future that we should pray never becomes a news story of the present." Hmmm!

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Alan Dean Foster is writing a series of books set in the galaxy he originally created for TAR-AIYM KRANG. In ICERIGGER the new book, he postulates a frigid planet on which a party of humans is stranded. They are an ill-assorted group, initially intent on cutting one another's throats. They are rescued by a company of tran—the local inhabitants—and escorted through many adventures to the tran fortress town. On this iceworld, the natives move by extending their batwings and allowing the violent winds to sailskate them over the frozen landscape. The humans are at a dreadful disadvantage—having no natural locomotion, being vulnerable to the cold and being totally dependent on the strange tran . . .

With his first story *The Book of Rack the Healer* (serialized in IF a while ago), Zach Hughes established himself as one of those tellers of tales whose ability to create life forms makes them unique. Now Hughes is back with THE LEGEND OF MIAREE. She is an Artonuee—a delicately furred, winged creature with great multi-faceted eyes. Her world seems ultimately doomed by a head-on collision with another world. But the time is far off, and the Artonuee hope to find a way to divert the rogue planet. Miaree, in her one-man space flyer, must save her people. Szafran has captured the delicate and ethereal quality of Miaree's ship in one of the most beautiful sf covers we've seen. Look for it!

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subjective accouterments—the noumenon, as it were; 3) the one I subscribe to: that the ISA medics were wrong in their conclusion that an interplanetary voyage of this duration could safely be undertaken by one man without his experiencing adverse side effects—that what I am experiencing now is a form of regression brought on by my subconscious to delete from my physical awareness the awesomeness of my real surroundings.

"To elaborate—when I was eight years old I received for my birthday a MINI-SOLAR SYSTEM KIT. Although much more sophisticated, it had considerable in common with the tinkertoy sets of my great grandparents' day. Correctly assembled, its various parts formed a sort of extensive orrery consisting of a 350-watt bulb centerpiece, around which nine painted plastic planets and thirteen painted plastic moons (for obvious reasons, only those moons closest to their primaries were included while the asteroid belt was omitted altogether) orbited at drastically reduced distances but at velocities reasonably in ratio to their real-life counterparts. This was accomplished by means of nine flat metal arms radiating fanwise from a hub centered beneath the 'sun.' Each planet was affixed vertically to its appropriate arm by means of a vertical metal rod, and an electric motor and a differential housed in the hub effected the correct orbital velocities. The only

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thing lacking was axial rotation, but this was compensated for to some extent by magnetic-repellor cores in 'Earth,' 'Mars,' 'Jupiter,' 'Saturn,' 'Uranus' and 'Neptune' that kept their respective steel-cored moons at fixed distances from their primaries and, by revolving, lent them orbital motion.

"Once assembled, my mini-solar system literally filled the basement recreation room where my parents had permitted me to build it, the season being summer and social get togethers having been transferred to the patio. The plane of the ecliptic was some three feet above the floor and some four below the ceiling. At its outermost point, 'Pluto's' eccentric orbit barely cleared the doorway leading to the kitchen stairs. Augmenting the radiance of 'Sol' were four overhead fluorescent tubes.

"I peopled my extraterrestrial planets with all sorts of weird life forms, but for 'Earth' I created a race of beings very much like ourselves and a civilization sequence roughly parallel to our own. After fabricating a history of wars, famines, floods, earthquakes and what-have-you, I crowned my little world with a technological civilization not greatly different from the one I lived in. I then proceeded to play God in earnest, raining down upon the helpless heads of the poor beings I had brought into existence calamities and catastrophes and diseases of every description. I created power shortages, devised domestic tragedies, instigated riots, ignited wars. In a sense, I tinkered with the destinies of my mini-humans in much the same way I had tinkered with the mini-solar system in which they lived.

"At first, the idea of 'spaceflight' did not occur to me, although a tiny toy spaceship had come with the kit . . ."

HARRIS sat dozing in the control chair, dreaming of his wife and home. His wife's name was Georgiana and she was like a wind walking, a night wind, cool and lovely, with night-black hair and evening-star eyes. Georgiana. And the house where they lived sat by a river that sang, beneath trees that whispered amid the golden laughter of lazy summer afternoons . . .

Awakening, he had no idea how long he had slept. He was hungry and thirsty and he saw little black flecks when he blinked. His tongue seemed to fill his mouth.

Clearly he had slept for quite some time. When he looked through the starboard porthole he saw that "Mars" and its moonlets were now much closer. It stunned him that a self-induced illusion could keep such perfect pace with reality. But on the other hand, how could it fail to keep pace? Illusion or no illusion, the plastic spaceship he was riding in was still the *Starquest*, "Mars" was still Mars and "space" was still space. And he was

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still Harris, Andrew, Lt. Com., USN.

He pressed his cheek against the oddly resilient glass and looked along the line of the ship's trajectory. He saw both "Jupiter" and "Saturn." "Uranus," "Neptune" and "Pluto" were apparently elsewhere in their orbits and out of sight. "Jupiter's" famous marking was a vivid splash of crimson. "Saturn's" rings looked as though they were made of aluminum foil. Neither had its full quota of moons: "Jupiter" had only four, "Saturn" only three.

He crossed the control room and peered through the opposite porthole. He saw no stars (he had not expected to see any)—only bluish radiance tinged with the wan yellow rays of "Sol." And in the far distance a vast pale blur. As he stared, the blur seemed to move . . .

He slammed the door on the logical conjecture that tried to step into his mind and moved back quickly from the porthole. Shivering, he returned to the starboard porthole and pressed his other cheek against the glass. Both "Earth" and the "sun" were hidden by the hull. He would not be able to see them till Moonbase activated the retro-rockets in the *Green Avenger's*—the *Starquest's*—prow and the ship went into orbit. The illusion was quite strict about such matters.

From his notetapes:

"Later, if there is a later in my life and if the veil that I have drawn over the face of reality dissolves, I will transcribe these notes, which I am recording on my pocketaper, to the *Starquest's* log.

"Although of necessity way out of proportion to the hurtling 'celestial bodies' it was meant to travel among, the toy spaceship that came with my mini-solar system was a masterpiece in the art of miniaturization. Delightful glimpses of its illuminated, incredibly detailed interior could be obtained through tiny saran-wrap portholes located at regular intervals in the plastic hull, and I spent hours peeking in on its Lilliputian control room, trying to make out the infinitesimal readings on the dials and gauges and the details of the picture painted, as though on the head of a pin, on the viewscreen. It was inevitable that when the time came I should project myself inside—and just as inevitable that I should project myself, not as an eight-year-old boy, but as the full-fledged astronaut I intended someday to become.

"The plastic material of which the ship was made was so featherlight that even with the additional weight of the batteries and the tiny electric motor, plus that of a small counterweight in the prow, less than half an ounce of heliumite had to be pumped into the ventral buoyancy tank to hold the little vessel aloft.

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"As the 'creator,' there was no real need for me to employ mechanical means to explore my minicosmos. I could see all my worlds at a single glance and, having 'seeded' them, I knew what sort of life forms they contained. But there was a romantic need and eventually it surfaced. When it did I christened the ship the *Green Avenger*, located the remote-control box that had come with her and set her on a course for 'Mars.'"

HARRIS was certain that when Moonbase commenced retro-fire the resultant recoil would shock him back to reality. He expected braking action to begin at any moment. It was true he had no means of telling time, but his hunger and thirst informed him that close to twenty-four hours must have passed since he had looked into the drive room. Moreover, "Mars" and its moonlets were now opposite the ship's stern.

He felt strangely light-headed and the black flecks he had noticed earlier had bred like flies. He attributed both symptoms to his near-exhaustion and to his hunger. To get his mind off both he began fiddling with the plastic dials and switches in the vicinity of the plastic radio, hopeful of finding the real switch that had to exist somewhere.

He fiddled and he fumbled, but he found nothing. Abruptly he felt himself sway. He regained control of himself almost instantly. Nevertheless, he knew that for a fraction of a second he'd blacked out.

The experience opened his eyes, and he saw who his enemy truly was. It was neither hunger nor fatigue—it was asphyxiation. Frantically he broke off one of the longer control-panel levers and began striking it against the porthole. When the "glass" gave it did not break, but tore. This did not particularly surprise him, nor did the life-giving air that wafted through the rent. Nor did the cooking—and other familiar—odors that the air contained.

He kneeled for a long time with his nose and mouth to the opening. Then, to make certain his enemy was permanently defeated, he crossed to the port side and gutted the other porthole. Returning to the first, he tore out the rest of the "glass." As he did so he noticed that "Mars" had a slightly different aspect. It was no longer tilted in quite the same direction, and its southern polar cap, so clearly visible before, was now almost out of sight behind the curvature of its southern hemisphere.

There was only one answer: Without benefit of retro-fire, the *Green Avenger* had swung into her first Mars orbit.

From his notetapes:

"I am *physically* on board the *Green Avenger!*

"I am *physically* present in my mini-solar system!

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"There can be no other explanation.

"No illusion could *possibly* be of sufficient intensity to induce imaginary asphyxiation, or so impenetrable as to shut out the recoil of retro-fire. Moreover, it is inconceivable that I would even unconsciously have exchanged the glorious cosmos I belong in for a mass-produced tinkertoy affair built in a smelly cellar by an eight-year-old snotnose who enjoyed pulling the wings off flies.

"I did not regress mentally to a former set of physical conditions—I returned physically to them. Not instantaneously but by degrees—a circumstance that led me to conclude erroneously that I had regressed mentally. And to cloud the picture further, this time around I am playing a different role.

"How? Why? And what will become of me when my eight-year-old self tires of his childish game?

"If only there were some way I could apprise him that there is a real, not an imaginary, little man in his toy spaceship—a hungry, thirsty, frightened little man who wants desperately to go home!

"But if I could—would I dare?"

HARRIS was able to obtain an excellent view of "Earth" when the *Green Avenger* passed the "sunward" side of "Mars." His home planet was just as he remembered her—painted a royal blue and stippled with white polkadots. Her nearness told him what he should have guessed long ago: at the most she was only a "day's distance" from "Mars," and when he had first looked at the latter, the *Green Avenger* had only recently left the vicinity of the former.

He was also able to obtain an excellent view of the "moon" and the "sun." The "moon" looked like a tinsely Christmas ornament. As for the "sun," its radiance dazzled his eyes, hiding from them the stilts on which little red "Mercury" and satiny "Venus" stood. But not the one on which "Earth" stood. She looked silly standing on it. Like a little old lady with one leg. Harris caught himself giggling.

The *Green Avenger* continued to orbit "Mars." He estimated her orbital time at slightly in excess of one hour. His time. To the "creator" the one hour plus probably amounted to a few seconds—if that. But Harris was involved physically in the reality of the minicosmos. Its "creator" was not.

The *Starquest* had been scheduled to make three full orbits. Halfway through the fourth she was to have been launched on her homeward journey by a burst of booster fire in her stern.

Harris tried to remember how many orbits the *Green Avenger* would make before *she* began her homeward journey. Try as he would, he could not. Worse, he could not remember where the boy Harris had sent the ship afterward.

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Worse yet, he could not remember what the boy Harris had ultimately done with it, or, when the novelty of his creation wore off, with the tinkertoy solar system.

Halfway through the fourth orbit he saw that his hands were trembling. He tried to stop them, but he couldn't. When the *Green Avenger* began her fifth orbit he heard someone laughing loudly close beside him, but he didn't look to see who it was. A distant crash reached his ears through the torn porthole. He didn't look to see where that came from either. He could smell boiled cabbage, stale cigar-smoke and old shoes.

Upon completing orbit number five, the *Green Avenger* continued blithely on into orbit number six. Whoever was laughing beside Harris began laughing even louder.

From his notetapes:

"What—what did I do with the ship?

"Did I throw it out with the ordinary trash to be picked up and recycled?

"My God! Didn't I know there was a little man in it?

"And how long did I keep it in orbit around 'Mars?' How long? How long? How long?

"And my tinkertoy solar system—what did I do with that?

"Oh, God! I can't remember!"

NEAR the end of orbit number seven, Harris picked up the

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plastic lever he had used to gut the control room portholes and ran with it down the corridor to the drive room. He was quite mad. Entering the cubicle, he inserted the lever between the face of one of the batteries and the corresponding contact arm and pried for all he was worth.

The lever broke, catapulting him to the deck, but not before the arm bent and contact was permanently severed.

Gasping, he got to his feet and looked through the drive room porthole. A single glance apprised him that he had achieved his purpose, insane though it may have been. The *Green Avenger* was drifting slowly away from "Mars."

He listened. The humming and whirring noises were no more.

A look through another porthole told him of yet another development: a second, smaller blur had begun to protrude horizontally from the vast pale haze he had noted earlier, that had seemed to move. He remembered then what the boy Harris had done with the ship. When, on its maiden voyage, it had inexplicably ceased to respond to the remote-control signal he had been transmitting he had grabbed it out of midair and, in a fit of boyish anger, had thrown it into the "sun."

The ship had split in half and he had never bothered to glue it back together. Nor had he bothered to replace the shattered "sun." Already bored with his mini-cosmos, he had torn it down one day and gone on to a new boy. Ultimately both the system and the ship had been given, or thrown, away.

With the memory came a cold clearness of thought and an instant later the truth—or as much of it as Harris would ever know—burst like a nova in his brain.

From his notetapes:

"Causality!

"It was there all the time but I couldn't see it because I thought of it in terms of chronological time and conventional space.

"I know now that it is independent of both—that, like the velocity of light, it is a constant—a constant that bends all else to its will.

"I am in the *Green Avenger* because I put myself here.

"And I am about to throw it into the 'sun' because I caused it to go out of control.

"Cause and effect . . .

"Unknowingly, I initiated a cycle, a cycle that in one sense took years to complete itself, in another minutes, and perhaps in a cosmic sense, no time at all.

"There is a strong chance that in so doing I made my becoming the first astronaut to undertake a solo Mars mission inevitable. That I do not know. But I do know this: the cycle *is* completed. Hence, I shall return momentarily to the *Starquest*. To real space. To the vast, the magnificent, the transcenden-

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tally beautiful solar system I so flagrantly desecrated with my picayune imitation.

"God! It will be good to be home again!"

HARRIS wasn't worried about the hand. It would be hours—his time—before it reached its destination.

He sat down in the drive room doorway and fixed his eyes on where the subatomic drive would soon appear. And after what seemed an eternity, it *did* appear, and the 1.5 volt batteries reluctantly faded away . . . And one by one, the six white mice turned back into resplendent coursers, and finally the pumpkin turned back into a coach.

He hurried forward to the control room. Entering, he dropped to his knees before the viewscreen and looked reverently down the black, star-bordered paths of space. He saw the red and the gold and the blue star-flowers, and the huge orange rose of Mars. He realized that he was crying.

He did not get up for a long while. When he did so his eyes sought the ship's chronometer. It confirmed what Mars' position had already told him: despite his inanition, despite his dehydration, despite his nerve-racking tour of duty aboard the *Green Avenger*, no time had elapsed between his departure and his return.

He had surmised as much. It made no difference in any case. He was too glad to be back to care.

HE WAS still glad to be back when he learned, after his internationally celebrated return to Earth, that his wife was terminally ill. Georgiana. (*Ah love, let us be true to one another for* . . . . she whispered before she died.) He was still glad to be back when, early in the following spring, floods destroyed his home. He was still glad when the business in which he had invested all his savings after he retired, went bankrupt. He was still glad when a contretemps in an obscure African nation caused worldwide repercussions that ultimately ignited World War III. Even when the first bomb fell Harris continued glad. Only with the second did he begin to have doubts. When the third one fell he thought he saw a boyish face in the sky. At first he thought it was his own of long ago, but he knew instantly that it was not. The forehead was too wide, the mischievous eyes too far apart, the rosebud mouth too full. The vision faded swiftly as the colossal rod holding Earth aloft collapsed and she went plunging down to the cosmic cellar floor to break into a million pieces. The sun went out, and all was darkness then (though Harris never knew it) and the smell of boiled cabbage, stale cigar-smoke and old shoes. ★

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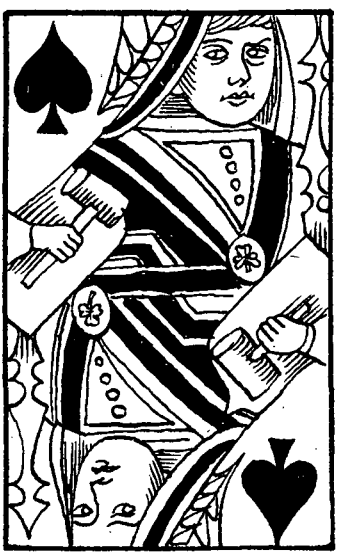
DANGERED SPECIES

needs Spokelspuks, anyway?

R. A. LAFFERTY



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"WHAT do you know about the Spokelspuk?" Benoni Lambert asked. Lambert was director of the Species Conservation Bureau.

"Is the Spokelspuk an endangered species now, Benny?" Agata Scampo asked him.

"What is the present head count on them?" her husband, Conrad, wanted to know. "Do we have a head count?"

Conrad and Agata were not in as perfect accord as they once had been. Certain misbehaviors had ruffled and rippled the clear surface of their relationship. But they were still in wordless and almost telepathic understanding with one another.

Conrad now called soundlessly to Agata, *What in peristaltic perdition is a Spokelspuk?*"

And Agata was forced to answer him just as soundlessly, *I don't know either.*

That was bad. When you are the ace team in the species-preserving business you cannot afford to admit ignorance of anything.

"No, we do not have an accurate head count," Director Lambert admitted. "The reason is that it is difficult for a layman (and we cannot have experts everywhere) to make a sure identification."

"Like the Ruffled Yellow-Head Duck," said Conrad.

"That was so often mistaken for the Morgan's Merganser by the ignorant," said Agata.

"Yes, this is the same sort of thing." Lambert spoke sadly. "Both the Spassenspuk and the Spottelspuk have been falsely identified as the Spokelspuk."

"I can see why, Ben."

"I can't," Lambert confessed. "They're really not at all alike except in appearance, and this is one case where appearance is meaningless. But our so far uneducated guess is that there are now fewer than thirty of the Spokelspuks left in the world."

"How about the Trondheim district of Norway?" Conrad asked. This question had stood him in good stead many times before. No one seemed to know anything much about Norway.

"No, there couldn't be any in the Trondheim district," Lambert told him with thin patience. "The Trondheim is a sod-house region."

"Of course. I wasn't thinking." Conrad confessed lamely.

"I don't presume to tell you two how to go about your survey and implementation," Lambert said. "You are clearly the best team we have. Draw ordinary funds from the bursar. For extraordinary funds, as always, make application to the committee. That is it, folks. We'd like to have a report with recommendations within a month. We would really like you to effect a population increase in the Spokelspuk within that month."

"We may just do that, Benny," Agata told him. "We have some forceful ideas along that line."

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"One thing, before you leave. I have a very rare tape of the Spokelspuk. Be warned—the sound it makes jangles the nerves of even the most steady." Lambert set the tape to play.

At first came a cranky murmur. Then a snuffling as of some creature drawing in windy breath for a great endeavor. Then came the inimitable, unhinging sound itself.

It began as a scream. It was followed by a heart-freezing clatter and a laugh that curdled all the juices of the body. It was a mockery that sucked all the marrow out of the soul, it was a shriveling derision, a cruel gloating gobble that brought one to absolute desolation, to the ragged despondency that is just short of death. A laugh like that should not have been allowed in hell.

"That is the sound of the male Spokelspuk," Lambert whispered with a shudder. "The tape, thankfully, doesn't quite do it justice."

"Yes, I've always found it an unnerving sound," Conrad lied easily. He looked quite shaken.

"The sound of the female is worse," Lambert said.

"Good for the female," Agata exclaimed with a sick smile. "Of course it's a little hard to worry about the Spokelspuk's being endangered. It really should be extirpated, a thing that laughs like that? We have this special rescue and revival job to do, though, and we will do it. We are professionals."

"Of course," said Lambert, knowing that they were stalwart and dependable. "Of course."

CONRAD and Agata left. They stopped at the bursar's and drew ordinary funds just short of the extraordinary limit. Tomorrow, after they had thoughtfully studied the situation, after they had (to be truthful about it) found out exactly what a Spokelspuk was, they would decide how extraordinary should be the funds they would ask for. The stickiest deals paid most. To save from extinction something that laughed like the Spokelspuk ought to pay well.

"It has to be either a bird or a human," Conrad said as they entered the working phase of their program. "Nothing else could laugh like that."

"And we've never had a call to preserve a human species from extinction." Agata set in that piece of the puzzle. "There are a few I wouldn't want to save, the Sandy Sue species for instance. But I believe the Sandy Sue is in no danger of becoming extinct. She's too common for that."

"Now you are casting reflections upon my taste," Conrad said stiffly.

Sandy Sue was a young lady in whom Conrad had shown much interest. Actually Conrad showed interest in many young ladies, but Sandy Sue had become a type of this activity in the mind of Agata.

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"ARE you two looking for me?" a buxom and pink-haired lady asked Conrad and Agata. She followed them out to the street. There was something unreal about her, pleasantly unreal. She looked like a younger member of some endangered older species.

"Madam Hexe, we have absolutely no use for a discredited medium," Agata said.

"But I divine things," Madam Hexe said. "I divine things especially by physical contact."

"And what do you divine now?" Conrad asked.

"That you need me. That you have just received a well-paying assignment and that you have no idea how to go about doing what you must. I want to cut myself in. I can do the job for you that nobody else can." And, in the process of divining by physical contact, Madam Hexe placed strong arms around Conrad.

"Enough of that," Agata said.

"I'll follow you around until you realize that you really do need me," Madam Hexe said. "My pay—portal to portal, you know—has already started, but we can settle after you come to appreciate my true worth."

The Scampos ignored the medium then—at least Agata did. But she still followed them in the street and Conrad sometimes did drop back into her friendly arms.

"I'm still shaking from that Spokelspuk laugh," Conrad said. "From the male Spokelspuk. And they say that the laugh of the female is even worse."

"I have to hear that," Agata said. "I have a feeling that there is a female Spokelspuk in my future. And I just believe—ah—I bet that the female Spokelspuk's laugh is the last laugh."

They went to see their favorite ornithologist. Madam Hexe still followed them and seemed determined to wait for them outside the bird-man's gracious home studio.

"You really do need me," she said. "A bird the Spokelspuk is not."

The bird man was friendly. He had worked with the Scampos before. He liked to help people and they liked to be helped.

"The world and myself can never honor the two of you enough," he said, "for saving the Lesser Speckled Grackle from extinction. Is there now another endangered species for which steps should be taken?"

"There is," Conrad Scampo told him. "The Spokelspuk."

"We have been informing ourselves, of course, as to the habits and habitats of the Spokelspuk," Agata said, "and now we have come to an expert for advice. Could you give us a good rundown on this imperiled bird? Are there any readily available printouts? Are Spokelspuk preservation societies already in existence? Sometimes it is well to work with existing groups

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even if they are composed mostly of amateurs and lay persons."

"Where did you dig up such a name as Spokelspuk?" the bird man asked. "Did old Lambert discover it?"

"Why, yes. Director Lambert," Conrad said, "has declared the Spokelspuk an endangered species and we are asked to implement its preservation."

"Did Lambert say that the Spokelspuk was a bird? Or is this another of those cases where you were too proud to confess your ignorance?"

"Well, what is the Spokelspuk if it isn't a bird?" Conrad asked. "What other life form is endangered?"

"It isn't a bird. Not any kind of a bird," the bird man said. "I don't know what it is. I never heard of it."

The Scampos left him. Out in the street Madam Hexe embraced Conrad competently.

"So he never heard of the Spokelspuk," Madam Hexe said. "I didn't think he would have. A specialist, you know. You had better hire me now. We need each other."

"You're so right," Conrad said, enchanted. "She needs the job and we need her."

"SHUT up, both of you," Agata said. "Where did you ever hear of the Spokelspuk, Madam Hexe? I don't remember mentioning the species in your presence."

"Are you sure you did not? But you've thought of it—and I lift things out of the mind. There is only one way to increase the Spokelspuk population, and that is to make more Spokelspuks. And all that is required to make them consists of sound wits and a good heavy wooden mallet."

"That is all that is required?" Conrad asked.

"Get lost," Agata said roughly. "No, not you, Conrad. You go with me. A bird a Spokelspuk isn't. What's the next most likely living thing?"

"An insect?" asked Conrad.

Agata asked, "So what entomologist do we know? Oh, oh, and what entomologist does Sandy Sue work for? Ah, well, he's the only one we know. And there's a species around worse than Sandy Sue. Come along then. The buggery is right in this block. You, Conrad, not you, Hexe."

"Oh, you really need me," said Madam Hexe. "A bug it is not."

"Oh, we really need her," said Conrad. "A bug it is not."

But Agata pulled Conrad into the buggery.

"Oh, it's that handsome Conrad!" Sandy Sue squealed. "And Agata."

"Conrad has been bitten by a different bug now, Sandy Sue," Agata said. "And I want to talk to Mr. Oktopteryx right away."

"Go right in, Agata," Sandy Sue said, "and I will try to unbug Con-

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rad. We don't want any strange bugs biting him."

"Otto," Agata said to the great entomologist, "how does one unbug a husband?"

"You may be using the word in a non-entomological sense, Agata," said the great von Oktopteryx.

"Not entirely, Otto. But you have to help me on something else. Can you give me some hard information on the Spokelspuk? It's been declared an endangered species."

"I can't blame you for trying, Agata, but it isn't an insect."

"How many kinds of insects are there, Otto?"

"Somewhere between a quarter-million and a half million species."

"And you know them all?"

"I know enough about them all to know that none of them is named the Spokelspuk."

"Oh, damn. I wonder what it is then."

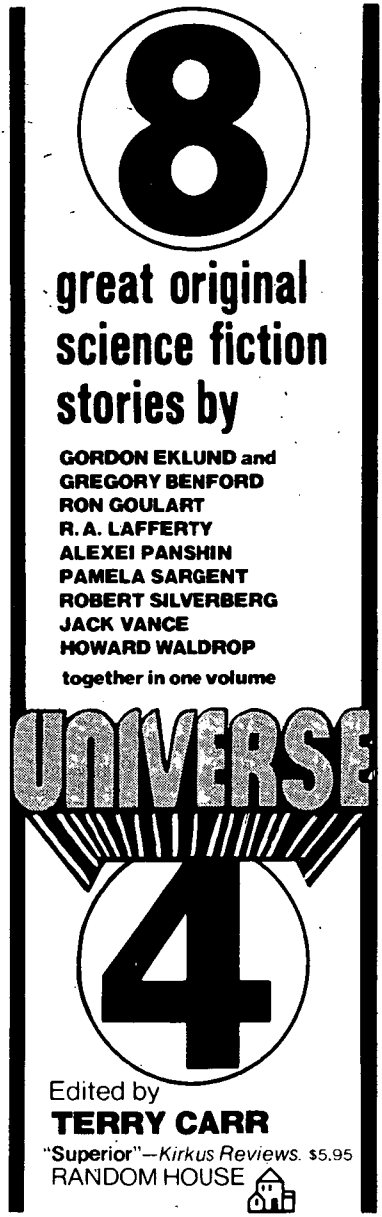
"If it isn't an insect, then it's something else. Don't you see how that narrows the field? There are more species of insect than of all other living things added together."

"I guess so. Thank you, Otto."

Agata went out through the reception room with its wonderful display cases. She found Conrad sitting on the silken knees of Sandy Sue, apparently getting unbugged. Agata led him gently by the ear out of the room and out of the building.

"A bug the Spokelspuk isn't," she said.

"Oh, then it has to be an



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animal," he reasoned. "Animal, marsupial, amphibian, reptile, snake, worm, fish, something. Let's go talk to the great naturalist Hugh Singletree."

"Let's go talk to the great medium, Madam Hexe," said the waiting medium, Madam Hexe. She had obtained from somewhere a heavy wooden mallet.

"Let's go talk to the great medium, Madam Hexe," said the befuddled Conrad.

"Actually, three of the Spokelspuks inhabit a house only short blocks from here," Madam Hexe said. "It's at thirteen-thirteen East Hodges. Let's go there now. Once we are there, I believe we can discover a way to increase the Spokelspuk population by one, possibly by two."

"No! We're going back to Director Lambert to find out what a Spokelspuk is," Agata said. "I must ask—what is the mallet for?"

"You knock someone off with a wooden mallet, you make a Spokelspuk," the Madam said. "You knock someone off with something else and you make something else, maybe a Spassenspuk or a Spottelspuk. We wouldn't want that to happen. They aren't endangered species."

"—maybe a Spassenspuk or a Spottelspuk. We wouldn't want that to happen," murmured the enchanted Conrad.

"Untangle yourself from that pink-headed witch," Agata sputtered angrily. "We're going back to Mr. Lambert right now."

"Easy, Agata," Madam Hexe jibed. "We want you to get mad, yes, but not too mad too soon."

"—to get mad, but not too mad too soon," Conrad echoed.

They went to see Director Lambert.

"Great news, great news," he greeted them. "We have just received important information that ties right in with your project. There is a nucleus, and it is always easiest to add to a nucleus. I have learned that three of the rare Spokelspuks inhabit a house only short blocks from here. It is located at—"

"At thirteen-thirteen East Hodges," Agata said dismally.

"Ah, then you know? Why are you here then instead of there?"

"Oh, Mr. Lambert, we wanted to ask you—" Agata tried to say.

"Of course it's all right," Lambert assured her. "Get over to thirteen-thirteen at once."

They started over to 1313. As they walked along, Madam Hexe swung her heavy wooden mallet and decapitated a cat.

"What an awful thing to do!" Agata cried out.

"Don't think of it as killing a cat, Agata," Madam Hexe said. "Think of it as making a Katzenspuk."

"Think of it as making a Katzenspuk," Conrad echoed her.

"Why not as making a Spokelspuk, if you use a wooden mallet?" Agata asked with sudden suspicion.

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"Oh, no. To make a Spokelspuk, you must start with a human person," Madam Hexe said.

"—must start with a human person," Conrad echoed. For some reason this made Agata feel unnaturally cold.

THE house at 1313 East Hodges was large and empty. The windows were broken out. The doors sagged open. Yet it once had been a glorious house. Ancient nobility clung to it like old moss. It was down in its luck, that house, but it maintained an attitude of grandeur.

"Oh, this is the old haunted house," Agata said. "I remember it."

"In we go," cried the madam. "This may be the new home of one or both of you. Over the threshold with you, Conrad. In, Agata, in! Ah, you can hear old echoes in the air right now. Come, come, friends in residence, greet us with the laugh."

The laugh came so powerfully that it knocked the three arrivals to their knees. The scream (bloodthirsty and foully happy), the heart-freezing clatter, the gobbling laugh that curdled all the body juices—a laugh like that should not be allowed in hell. That was the sound of a male Spokelspuk. The tape had not done it justice.

"The element spuk in the name is spook, ghost, isn't it?" Agata asked. She had to say something to disguise her shaking.

"My, you are slow," the medium jibed. "You'll have to sharpen up quick or you'll be no good at this. We'll want you to get mad, you know, when it's time for it. But you can't be too mad too soon. And it's only a little bit too soon for it now."

"You knock off a person with that wood mallet, and you make a Spokelspuk?" Agata asked in her building wrath.

"Hardly ever," Madam Hexe said sadly. "The world, as we know, has been taken over by pleasant people, and there's hardly any of any other sort left. The pleasant peasants may be good for something, but I sure don't know what it is. You can't make a Spokelspuk out of a pleasant person, I'll tell you that. It's because of this that there are now so few Spokelspuks. They fade away after a few hundred years, and they just aren't being replaced. Hardly any Spokelspuks are being made. But this afternoon we should be able to make at least one."

"This afternoon we should be able to make at least one," Conrad echoed.

"And, fortunately, you are not a pleasant person, Agata," Madam Hexe said.

"And, fortunately, you are not a pleasant person, Agata," Conrad echoed. And the wrath of Agata continued to build.

The other male Spokelspuk sounded. His gobbling laugh was stronger than that of the first

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"No human nerves can stand much of that horror," Agata said. "Well then, perhaps I will become unhuman or post-human. Something here swims upstream or goes against the grain. I love the hateful stuff a bit. I suppose it's mostly that I love being hateful."

"Get mad, unkempt Agata, get mad," Madam Hexe taunted her. "It's all you're good for. When you go you have to go in a fury or it's all in vain."

"Shut up, witch! Sound off, oh male sound! Whatever you are, you're stormier than I am. Where is the third one?"

A monstrous noise like that could be bagged and sold to horror movies by the pound. The twin devil-ghost laughters were like ripsaws cutting the brain and meninges and every nerve. They set up a screaming in each inch of the body. Such two pillars of strident cacophony could not be topped.

Could they not? The female sounded. That cutting, killing, spirit-shriveling laughter set the very rats to tumbling fearfully out of the walls of the haunted house. Sound could never be quite the same again, after it had included this.

"I wonder if I could do that?" Agata asked almost rationally. Almost, but her eyes weren't rational now. She bled copiously from the mouth from her self-bitten tongue and lips, and from the ears as they all did. And there was white froth gathering in the mouth corners.

"Sure you could do it, Agata," Madam Hexe purred. "And it is almost time that you do it now."

"And it is almost time that you do it now," Conrad echoed.

"What is your real interest in this, Madam Hexe?" Agata asked. They seemed sane words, but they came almost automatically from an insane mind.

"Oh, I'm a paid lobbyist for the Spokelspuks," Madam said.

"Then why are you so avid for our pay also?" Agata questioned.

"They don't pay me in material coin. I need that also."

The horrible triple laughing of the Spokelspuks rose to a crest, then to a higher crest, then still higher. Would it never break?

"Come here, mad Agata," Madam Hexe ordered in her own delight. "You are ripe for it now. Come here." The Madam was happy in her coming triumph. She was one happy medium.

Agata came to them. She saw Conrad sitting on the numinous knees of Madam Hexe on an old worm-eaten deacon's bench.

"Conrad, you know how such silly carry-on always irritates me," Agata said. She spoke gently, but she was mad as a gooney-bird. Then she screamed and laughed. It was the nearest possible thing to the Spokelspuk sounding for one still wearing the mortal coil.

She took the bemused Conrad by the hair and ears and flung him

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across the room where he crashed against the wall and came to rest beside the wooden mallet.

Madam Hexe rose smiling. Everything was going just as she wanted it. Agata struck that happy medium full-handedly and set her on her numinous rump on the floor.

"She's ready," Madam Hexe giggled. "Where's the mallet?"

"She's ready," Conrad echoed. "Here's the mallet."

Conrad wobbled to his feet with the heavy, sound, wooden mallet held high in his two hands. He bashed his wife heavily and loudly on the head with it.

Killed her too.

The Spokelspuk population had been increased by one.

Then there were four sources of that killer laughter sounding in the old haunted house. Oh, oh, oh, oh, bleeding ears and blown medullae! It was more than flesh could stand.

IN THE courtroom there was a fundamental disorder that could not be cured. There was, mainly, a loud weird noise like demented laughter, demented female laughter, or the laughter of something that had once been female. The source of this noise could not be located, but the rampant sound was nerve-racking and abrasive.

And then there was the defendant Conrad Scampo who refused to plead insanity.

"No, no, I am not insane," he insisted. "It is just that insane things have been happening to me."

"You still insist that you killed your wife while under the influence of a witch known to you only by the approximate name (your own term) of Madam Haddem?" the prosecutor was questioning him. "And now you don't know where this witch is?"

"She is everywhere. I see her everywhere and all the time. I see her in the courtroom now, right there, right back there, sweet-talking one of the guards. See her, the witch?"

"No, Mr. Scampo, I do not see the witch. And you are not able to describe her further?"

"Yes. She has numinous knees. Examine all the women, and she will be the one with numinous knees. You can't miss her. Shut up, Agata!! Damn it, *shut up!!!*"

"Yes, the noise *is* irritating, isn't it, Mr. Scampo? We apologize for it, but we still have not been able to locate the source of it. And you still insist that it is the laughter of your dead wife?"

"Yes. Before it happened, she said she believed it was a female having the last laugh. Well, she won't get away from it. I intend to have the last laugh myself. Wait till I get my hands on her!"

"Mr. Scampo, you have stated that the approximately-named Madam Haddem was a paid lobbyist for a gang of ghosts. Does this not strike you as insane?"

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"It sure does, but I did not state it. I stated that the Madam stated it."

"But you did state that Director Benoni Lambert of the Species Conservation Bureau had declared this gang of ghosts to be an endangered species and had assigned you and your wife to finding means of increasing the number of these—ghosts. But Mr. Lambert completely denies this himself. What do you say to that?"

"I think he was taken by a hoax that was started somewhere in the organization by some tool of the Spokelspuks. He was ashamed to admit that he didn't know what Spokelspuks were, so he passed it along to us. And we were ashamed to have to ask what they were."

"And now you are worried, not so much that you may be executed for the murder of your wife, but that the manner of execution might somehow be wrong?"

"Yes. If I die in the electric chair, I won't become a Spokelspuk at all. I will become something else, possibly a Spassenspuk or a Spottelspuk. As such, there is no guarantee that I will meet my wife again or even be on the same plane with her. Is it too much to ask that I be bashed on the head until dead with that stout, wooden mallet that is in the evidence section there? I'll put an end to that crazy noise quick enough then. Just let me get my hands on the throat of that loud-throated wife of mine and I'll put an end to it." And Conrad was making insane and throttling motions with his hands.

There came the Agata laugh again, maddening.

"No, you will *not* have the last laugh," Conrad sputtered angrily. "I'll get you, Agata, I'll get you!"

"Be calm, Mr. Scampo," the judge said. "And just what is the mallet business?"

"It is a requirement for becoming a Spokelspuk. After all, you have to have some rules for admission."

"Where, by the way, do these ghosts live?" the judge asked further.

"In old wooden houses mostly," Conrad told him. "They can't live in a sod house at all. They can inhabit a brick or stone house if there is enough wood in the interior, but they are not comfortable there. They can inhabit, for a while, a courtroom in a terra cota and glass courthouse, if there is wooden paneling and wooden benches and tables, but they sure are not comfortable in such. I'm not either. I'm leaving. This whole thing is a farce anyhow."

"You are *not* leaving, Mr. Scampo. You are not going anywhere," the judge said. "Do you realize that you are on trial for your life?"

"I've told you already that I didn't want my life," Conrad said with a new chill in his voice. "I forfeit it. The only question now is

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whether the condemned man should be allowed to choose his own method of execution. I choose the mallet and you all look at me like a bunch of bare-faced idiots. And you say that *I'm* insane."

Conrad left the chair, and he seemed about to leave the courtroom with resolute step. There was the taunting, terrifying Agata laugh again.

And there was a sudden motion by a pink-haired lady who had been standing by the evidence box and sweet-talking one of the guards. She grabbed the stout, wooden mallet out of that evidence box, and she bashed Conrad Scampo heavily and loudly over the head with it.

Killed him too.

"That was really a lot of fun," said Madam Hexe, or Madam Haddem as Conrad had approximately called her. Several things happened then.

The screaming, gobbling, sickening laugh of Agata was throttled down to sickening silence. Conrad had finally got his hands on that loud-throated wife of his and was choking her, not to death for she was already dead, but into a queasy quiet.

Then the unpracticed but powerful death-moment laugh of Conrad Scampo sounded deafeningly. He had made it! He was a Spokelspuk now and he had, for the moment, the last laugh.

"You had better put that body in the disposal," Madam Hexe said briskly to the judge, "and then have someone mop up the brains which were so clumsily spilled."

"—had better put that body in the disposal," murmured the nine parts bemused judge, "and then have someone mop up the spilled brains. But wait a minute, lady. You have killed a man in my courtroom. Shouldn't I do something?"

"Yes," said the Madam. "You are a judge. Give the judgment that the Spokelspuk is no longer to be considered an endangered species. The two new ones should keep them going for another hundred years."

"—make a judgment," the now totally bemused judge was mumbling, "that the Spokelspuk be no longer considered an endangered species."

"I really have to go now," said the Madam. "Here's my card. (It was a simple queen of spades.) "Put it on the bulletin board. I give psychosomatic readings every morning from ten to twelve. Perhaps I can be of help to some of you."

"—every morning from ten to twelve. Perhaps she can be of help to some of us."

Madam Hexe left the courtroom and went about her affairs.

She had some odd groups for clients.

And she had a lot of class. She looked like a younger member of an older endangered species. ✦

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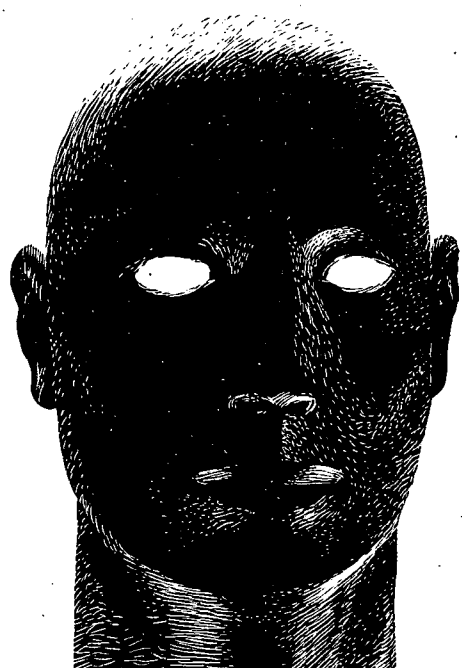
COX'S QUALITY

Genius is more than an aspect of personality!

WILLIAM VAN ARYCK



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WHEN the Encephaloprinter was invented in the middle of the twenty-first century no one in UNCART could think what to do with it. It had no economic value or any practical application that could be seen. Dr. Julian Cox, its inventor, worked in a Cambridge laboratory run by a British subsidiary of EUROCART. Thus Cox's invention became the property of EUROCART and so of UNCART. Almost none of the world's research was independent of UNCART, or more specifically of its science arm, UNCART/SCI, through its worldwide member organizations. Every day, throughout the world, hundreds of ideas, devices and products flowed from these labs for assessment, production and sales. However, UNCART leaders were not so shortsighted as to ignore the value of pure research and thousands of people like Cox were allowed to putter in any fashion they wished, provided that when the lead turned to gold in the alembic the process became the exclusive property of UNCART.

Cox was a researcher into psychic phenomena and it was from this study that he invented, discovered—or simply stumbled across—the Encephaloprinter. First accounts of it made it sound like a super brainwave machine, but this was nonsense. Cox had long since lost interest in brainwaves—Alpha, Theta, or what have you. What he was after was much more subtle. Telepathy, he postulated, did not consist of sending waves back and forth. The moving of solid objects was not the effect of emitted brainpower. Second sight did not come from any force latent and/or inherent in the brain itself. This had all been pretty well demonstrated for decades. There were no super brainwaves and there could be no machine to measure them.

Yet these phenomena existed. Over the past fifty years research had made great strides and provable results had been attained. It had been demonstrated beyond doubt that the human mind could do many things that could not be explained by emanations or waves. Like many before him, Cox had run through the Greek alphabet of brainwaves, Kirlian photographs, the results of the newer Van Donck deep-brain analyzer, plus some inventions of his own. But there he stalled. The Greek alphabet had no connection with what he was looking for. Neither did electromagnetic field auras. These were only tangential to the brain's own internal functions. So he stopped designing new, more sensitive receivers and when he did this, enlightenment came. It was then that he began to distinguish the Koran's white thread from the black in the dawn.

If the brain regarded as a transmitter had proved to be the wrong concept, Cox thought, perhaps it should be looked upon as a receiver or, more accurately, as an aware

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mass that senses and reacts. This concept was Cox's achievement. It received almost no publicity or even notice at the time he first advanced it. News of it was released to the public in simplest terms because there was no other way to make it even halfway understandable. So the public yawned over its coffee as the news of the Encephaloprinter clattered out of its video, a short paragraph after the fashions and before the sports page.

It was presented equally simply to the Directors of UNCART at a regular biweekly meeting. The eight, as usual, had lunched together in the executive dining room. They had then strolled peacefully across the formal Persian garden to the administrative wing. If they had happened to look they might have seen the hump-backed magnificence of Demavand, snow-capped even this late in the spring, shining on the horizon. They had eaten a good lunch and were contented men.

And powerful men.

At each of the eight places at the round conference table lay a sheet of paper giving a concise explanation of the Encephaloprinter and as much of the theory as was understood. Everything at the Director's level of UNCART was presented on a single sheet. An idea that could not be so reduced had clearly not been thought through. However, if there were problems—and usually there were—Dr. Gertrude Gold, C/UNCART/SCI, was there to remove them.

The conference room itself was a striking example of the architecture that made up the whole UNCART complex. It was hexagonal to begin with, the better to accomodate the round conference table. The round table was necessary because UNCART had no real head, but a directorate, all equal. The chairmanship rotated among the eight. The room was meant to reflect equality and there was nothing about the table, chairs or place settings that would set one Director above another.

The six walls, as well as the ceiling, were reinforced plexi-quartz, bullet-proof and nearly atom-proof. The polarity of the walls and ceiling could be regulated to provide any degree of darkness or light. Today the two walls nearest the westering sun were dark and the ceiling slightly so, giving the whole room a pleasant glow. Through the ceiling the white clouds in the strikingly blue Persian sky stood out starkly. The view through the walls was of surrounding gardens leading up to the mountain on one side and down to the swift river on the other. Imbedded in the plexi-quartz were wires that kept any sort of emanation from penetrating. The room was proof against any known listening device, thanks to UNCART/SEC. Next to the door stood the booth of the engineer who controlled the lighting, worked the entrance, adjusted the tempera-

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ture and humidity, hooked up the simultaneous interpreters when necessary, ran the holograph projector and all the other mechanical, hydraulic and electronic gear in the room. His booth, entirely soundproof so he could not hear the Directors talk, could only be entered from outside. But even with these precautions he still held a SEC Cosmoclear, the highest security clearance.

The Directors took up their papers and read, some idly, some intently. Within a minute most were fidgeting. Viktor Demchenko of SOVCART put down his paper and tapped it. The others looked up as if this had released them from labor.

"Perhaps you could summarize this for us, good Dr. Gold," he suggested.

Gertrude Gold turned slowly toward him. She was a large woman and oddly shaped. She studied Demchenko through large, thick glasses, like portholes and said seriously, "It has been summarized to the utmost in the report you hold. If you would be so good as to read it, I will try to answer any questions later."

Demchenko's gentlemanly smile faded and he looked down at his paper like a fourth-grader.

"Of course," he said, "Quite so."

Dr. Gold was right. There was nothing wrong with the summary. It told the men what they needed to know out of what was already known, but the concept was not really clear to anyone. It could be described in terms of effect but no more. They were all in Plato's cave, seeing shadows of reality.

THE paper said that the aura, the halo, the excitation, that surrounds everyone and everything somehow in turn excites the brain. These halos of excitation vary greatly in strength, but extend infinitely, interlocking like smoke rings or, better, smoke balls. Each brain is aware of these bubbles and tunes in or vibrates in frequency with some of them in its characteristic way. It is how—and to which—of these vibrations a mind tunes in that controls its mood. Since no two people tune to excitements in quite the same way, people behave differently in the face of the same stimuli.

This set or cast of the brain has little to do with intelligence, but it does affect personality and response. The brain oscillator determines what stimuli are selected and thus predestines the conscious level of the mind that deals with them—a sort of super-ego management package.

Cox's invention can record which excitations a brain responds or is tuned to. The Printer does not tell what these stimuli convey to the brain but only that they do it. No specific area is involved in this activity, which apparently depends upon an undifferentiated quality of

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the brain—now named Cox's Quality.

The paper said in conclusion that some experiments had been done but with indeterminate results.

The Directors finished reading and sat looking at each other. EUROCART's Reinholt Blessing, this year's Chairman, cleared his throat.

"I am sure there must be questions, gentlemen," he said.

A group chuckle answered him. These were bright men, but they were not scientists. Their abilities were as managers, financiers and manipulators. Some were not even well educated. However, they had all made their way, or worked their way, or fought their way, up the UNCART stairway. Sitting where they were made them *ipso facto* successful. They needed no apology for depending on others to furnish expertise. Dr. Gold was one of their experts.

"Am I to understand," Robert Ndolo of AFCART said, "that things are making our brains vibrate?"

"I prefer to say resonate," Dr. Gold said. "Like tuning forks."

"No, no, that doesn't help me," Togo of NIPCART said.

"I'm sorry, gentlemen," Gold said, "but I can't do any better. We in SCI don't completely understand Cox's Quality. We simply know how it works—not why."

"To interrupt," Blessing said, "we have a full plate of business in front of us today and it seems to me our task is to decide quickly what UNCART is to do, if anything, with this—ah—thing, or device."

"Now we're getting somewhere," Holdeman of USCART said.

"Certainly. You men are the Directors." Dr. Gold regarded them coldly from behind her portholes. "I will leave now if you are through with me." She started to turn toward the door. The directors partially rose as one man. They wanted no repetition of the lib strike of ten years before when every woman in all of UNCART and its subsidiaries walked off the job for three weeks. Dr. Gold had been their leader. Demchenko threw himself into the breach.

"Please, please, my dear Dr. Gold," he said, his arms outstretched. "Nothing, nothing like that. Why, we need you now more than ever."

With a slight shrug of mollification she turned back. "Well, of course, I am at your service."

As she waited and looked at them the silence became more embarrassing—as if they had rubbed a lamp, the genie had appeared and they were fresh out of wishes. Speak, junior, Grandma's on the line.

"Well, all right, resonate, then," Ndolo said, going way back and so buying time.

"And this device, this, ah—" the chairman looked at his sheet, "this Encephaloprinter, measures the vibrations or whatever that stimulate the brain to resonate?"

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Dr. Gold slumped and seemed to drive herself even more deeply into the carpet.

"No, no, Mr. Blessing," she said. "It measures the brain's response to them only. As far as we can determine, the vibrations—as you call them—cannot be measured."

"But, my God, my God," Demchenko said. "What then have we?"

Facing up to it and dredging up the last bit of analogy she had brought with her, Dr. Gold said, "I told you we don't know everything. Think of this instrument as a spectroscope. Aim it at a brain and it will show you a pattern of excitation. This is simply a measure of Cox's Quality. I might add that no two prints are the same."

"Like fingerprints," Castenero of AMCART put in happily. The others smiled. Dr. Gold looked at him without remark.

They all relaxed. This was the ultimate. Beyond this they had no responsibility to try to understand.

Chen Tsing Peng, of SINCART, had been quiet throughout. Now he indicated to Blessing that he would like to be heard. Blessing nodded to him.

"If I may say, gentlemen," Peng said in his highly modulated voice, "we still elude the mark. What are we to do about this?"

"Right, right," Castenero said, "we're being stupid."

"No, no," Peng said seriously. "Not that. We have simply been led astray by the unfathomable—perhaps falsely intrigued." He turned to Dr. Gold. "May I ask what I hope are a few pertinent questions?"

"Yes, let's go at it," Ndolo said, looking hard at his watch. Gold ignored the gesture and nodded to Peng.

"WE ARE informed," Peng said, "that this resonance probably accounts for psychic activity of one sort or another. Is this correct?"

Again Dr. Gold simply nodded.

"Now then, if the Encephaloprinter can—what should I say—? Register?"

"As good a word as any," Dr. Gold said.

"—register these resonances, can the device be adapted to produce desired psychic effects of some kind? Is there a possibility of useful benefits?"

Dr. Gold hesitated. She looked uneasily in several directions, as though she were missing something. When explaining anything she was used to having an implement of some sort in her hand—a light-board stylus, a holograph pointer, or some such tool for emphasis—and she felt uncomfortable without it. She reached in front of Mr. Togo and took his notaboard stylus. She began to jab the air with it as if she were impaling insects.

"Excuse me, Mr. Togo," she

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said. "We have, of course, carried on innumerable experiments employing the device, using both sensitive people, telepaths and the like, and normal—rather, nonsensitive—people. What we have achieved is the ability to trace the sensitive psyche at work. By use of the Printer we can see two sensitive brains resonate in tune with each other. This does not happen to nonsensitives. Between a sensitive and a nonsensitive we can see the first respond but not the second. This suggests that Cox's Quality, whatever it is, is at work in telepathy and other psychic phenomena."

She was interrupted by Ali Abbassi, Director of ASCART. "You said other psychic phenomena? Do you mean ghosts, table rappings, levitation—things like that?"

"Oh, my God," Holdeman muttered. "He's back with the genies." Some of the others looked at their hands. Castenero whipped out a handkerchief and flicked at his boot.

"As a matter of fact," Dr. Gold said, "we have used the instrument in studies of psychokinesis—" She paused, made up her mind and appended: "That is, moving solid objects by the power of the mind."

Interest renewed around the table. All looked expectant.

"We can see how this works, too," she went on. "We can see the sensitive tune to the emanations, aura, whatever you want to call it, of an object and then alter itself to force the object to resonate in turn

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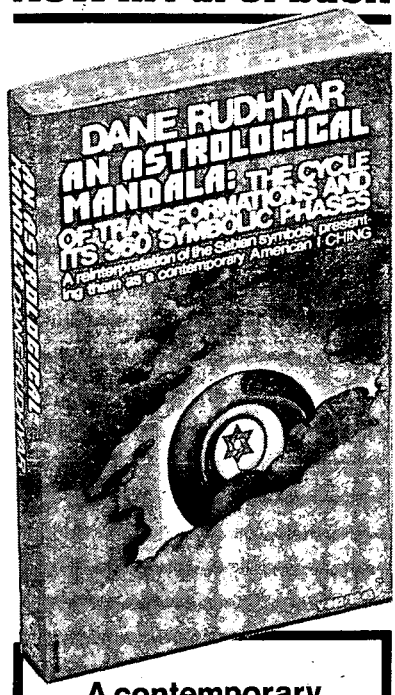
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as if from a different place. In fact, the object is then in that different place."

She looked around, rocking her stylus back and forth like a metronome. There were no questions.

"As to your first example, Mr. Abbassi," she said and smiled, cueing them that she was going to say something amusing. "Because Cox's Quality expends no energy, seems limitless and universal—in short, simply exists—some of our more religious citizens have taken it as proof of immortality, suggesting that Cox's Quality is in fact the soul, if you please."

She faced them one by one, the smile still on her face. The Directors reacted with puzzlement. Some resonated back her smile weakly.

"Ridiculous," Demchenko snorted.

"Quite," Gold said. Her smile faded and disappeared as if her cheek muscles had suddenly grown tired.

"We have no place for such remarks here," Togo said. "What a man chooses to think of the soul is a personal matter."

"Please." Blessing tapped the table with his stylus. Again silence fell.

Peng had been jotting on the illuminated notaboard in front of him. Now he looked at Blessing and raised his eyebrows. The skin grew taut on his cheekbones and brow, making them even more prominent. His head resembled, for the moment, an anatomical model—or the unwrapped skull of a mummy.

"Mr. Peng," Blessing said with relief. "I believe you have some words for us."

"Yes, I do. It seems that our options are quite simple, so simple, in fact, that I wonder why this matter was brought to us at all."

Dr. Gold stiffened slightly. Peng noticed her reaction.

"I realize this is not the fault of SCI," he said hastily. "It is not their function to make such decisions. But it puzzles me that IND/PRODEV couldn't have decided whether or not this had applicability—and acted accordingly."

"If you will pardon me," Togo said, "I believe they did decide. That is not the question."

"Oh?" Peng said. "There is no such statement here."

"Well, nonetheless, I believe it is the case. My staff so informed me," Togo said somewhat apprehensively.

"Is this true?" Peng asked Blessing.

"I believe there was some such preliminary paper that some of us may have seen," Blessing said, waffling as best he could, while looking down at the designs on his notaboard.

"I haven't seen it either," Ndolo cut in. "What goes on here, secrets?"

"No, no," Holdeman said. "Just another screw-up in ADMIN/REPRO.

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The report is probably on your desk right now."

"How have we survived so long?" Abbassi asked simply. He gave a small shrug. "But *ce sera, sera,* huh? No one is perfect."

ODD jottings and doodlings were being put on the assorted notaboards. Peng sighed and began again.

"Well, that is neither here nor there and cuts no ice," he said. He had an excellent working command of English and of its idioms, which he took pride in using as often as he could. But in his mouth the idioms became transformed somehow, took on strange colorations, as if he had just made them up. "The device has no practical application, is that correct, Dr. Gold?"

"So I'm told," she said idly, as if this were irrelevant to her, as indeed it was.

"Then what is the question before us?" Peng asked.

"Simply this," Holdeman said. "SCI has asked for authority to broadcast news of Cox's Quality throughout its organization. Anyone interested would then be allowed to spend his time and UNCART's money working on it to see if it can be further developed." He hesitated meaningfully, then went on: "It's the money thing, you see."

"Ah," Peng said.

"Let anyone work on it, huh?" Castenero was clipping his nails.

"As against keeping it more or less close, yes, that's right," Holdeman said.

Demchenko emitted a wordless sound of displeasure and Dr. Gold cut in impatiently with a two-minute lecture on science and freedom of investigation and how useful results were only obtained by open inquiry. To keep the Printer a semi-secret would doom it to remain no more than an interesting device. She cited numerous examples to prove her point. She closed with an exhortation, a note of irritation in her voice with these laymen who had so much power and seemed to her so patently mediocre.

"So, gentlemen," she said, "if you want Cox's Quality to remain uninvestigated and—from your point, unexploited—to become only a laboratory toy for a few selected graduate students, then by all means keep it limited. You would save money in the short run. But if you ever hope to have a use for it, actually make money from it—" they cringed as this Boadicea used their key word—"then free it to all."

They agreed quickly. They recognized the sense she made and, in any case, no one had the temerity to argue. Only Togo managed to introduce a small squeak of practicality.

"But how much money?"

"It is nothing, nothing," Abbassi said, waving his hand. "How much could it be?" He clearly spoke for the others who wanted to be done with the question.

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And so these men had made another hard-headed, closely reasoned decision. The Encephaloprinter would be given to SCI for free investigation by anyone who cared.

Dr. Gold smiled her cheek-wrenching smile, stood, and left the room.

After another hour of business the meeting broke up and the Directors moved to the pneumatic quartz door. They felt happy with themselves. UNCART's affairs were in good shape. They could now adjourn to the bar, enjoy a drink and go home.

There was much "please" and "after you" at the door, until only Abbassi and Blessing were left, bowing and waving at each other. Blessing, as Chairman, was determined to be last and Abbassi, from simple Persian training, could not bring himself to go before. Finally, when the others were halfway down the corridor to the bar, both moved at the same time and jammed together through the door, apologizing as they went.

The Directors strolled in small groups, except for Peng who walked alone marching to his own beat. They were well dressed as befitted their station. They wore conventional business attire, soft colorful shirts with long rolled collars, some with ruffles down the front, cummerbunds with utili-pleats for notaboards, stylus, UNcred cards and the like. Peng was the most simply dressed—Castenero was the most elegant. The luxury cloth of his shirt was a product of one of UNCART/SCI/ECO/AG's successful experiments in crop reintroduction in Mexico. The project had been hideously expensive and was far from being economic as yet. Castenero's shirt was one hundred percent pure cotton.

He hurried, caught up with Holdeman and took his arm.

"Ah, *amigo*," he said, "this Dr. Gold is some Amazon, is she not?"

"But one of the world's top psychologists," Holdeman said.

"Sure, obviously." Castenero laughed and slapped Holdeman's shoulder lightly. "But still a woman, huh? Still a woman?"

"Dr. Gold?" Holdeman seemed startled. Then he chuckled. "Yes, I suppose. Ferd, you Latins find romance anywhere, even if you have to make it up."

"It is our myopia," Castenero said with a slight tilt of the head, as if stating a fact, perhaps unfortunate, but one about which nothing could be done. "We keep hold of the past."

"There are worse things."

"But gone, *amigo*, all gone. Ah, if gunpowder had not been invented we Latins would still rule the world. Now we all come from the big UNCART can."

THE origins of the UNCART "can" were not clear, nor could anyone even say for sure what UNCART meant. Some thought the letters

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stood for United Nations Cartel, an outgrowth of the UN still in New York. Others thought Universal Cartel, still others, Ultra-National Cartel. No one knew. Even the first documents of its forming referred to the body only as UNCART. There was a story that it had been started in Cologne in the middle of the eighteenth century by a German Jew named Unkart, but this was plainly absurd. There were those who had suffered from UNCART's operations—and they were many—who called it Unscrupulous.

Actually, UNCART had won its position so gradually that some thought it had always been, like God, like the Universe. UNCART/CULT/HIST could trace its origins back effectively to the Renaissance, with only a gap here and there accounted for by human error. UNCART had managed people's lives so long that no one now could conceive of a world without it. There was an awful pun that said UNCART had come before the horse.

UNCART had united the world, not politically, but through more effective means. As all but ideologues should have known would happen, man's world had been united by economics, not politics. All men now were capitalists, big or small, or hoped to be capitalists. The linkages of big business all over the world had become strong. A world business organization of immense power had come into being. Not only had it grown—it had come to be accepted because people realized that running the world was too important to be left to the politicians. There was simply too much at stake.

The somewhat loose organization had formalized itself as UNCART with headquarters in Tehran shortly after the turn of the century. Tehran had been chosen for several reasons. It was convenient, located centrally between East and West. It had become a comfortable and modern cosmopolitan city where life could be pleasant. It was also removed from the influence of the great power blocks—while UNCART ruled and wished to rule, it did not want to be seen to rule more than necessary.

UNCART had built a magnificent headquarters complex in a valley north of Tehran that led to the old Shimshak ski resort. The valley was narrow and deep, with a clear, mountain-fed stream coursing its length. Built into the sides of the valley were the office buildings, laboratories, communications facilities, living quarters, bars, clubs, pools, and everything else that thousands of multi-national employees needed to live and work. The architecture, while modern, reflected the setting and had a definite Persian cast that was thoroughly satisfying.

Much plexi-quartz had been used in the structure. To set off the resultant starkness the roofs had wide overhangs, supported by flat columns interspersed with rows of bas-relief and mosaics. Gardens

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and pools afforded serene walks between buildings. The interiors featured planted arcades and malls. SCI/PSY/AMB had scientifically specified the ambience for maximum employee efficiency and peace of mind. The entire facility had a quiet campus atmosphere which did not reflect the immense power concealed in its walls.

As years went by UNCART grew to rule governments. It continued to tolerate the UN but ruled there also. Because war was unprofitable and upsetting to the established economic order UNCART would not tolerate it. It ended the Arab-Israeli problem that had been at flash point for over half a century through a superbly simple device—UNCART subsidiaries took over the management of the combatant countries. The black-white confrontation in southern Africa had been similarly resolved. Now black and white worked for managers manipulated out of Tehran.

UNCART was made up of eight regional cartel groupings: USCART, SOVCART, NIPCART, SINCART, EUROCART, AFCART, AMCART and ASCART. Experience had shown that eight was a good number, not too large and yet not overly centralized.

Political boundaries remained, although now largely as a matter of sentiment. Economic documents were more important than the old political passports. The plastic, Inter-Com card or Inter-Cred card had replaced them. The three diamonds of Mitsubushi stamped on a card were more useful than the rising sun. The block GM in plastic moved through customs easier than did the screaming eagle. The CHEMEX imprint worked more wonders than the hammer and sickle.

BASIC English was the world's lingua franca. It had become such automatically and as a matter of course in spite of the efforts of the Esperantists and the French. The French still maintained subsidized Ecoles-Francaises around the world out of nostalgia for the *grand langue* and gallic stubbornness, but these were filled with dilletantes and antiquaries. The Germans had long since written off the Goethe Instituten. The Russians still maintained VOKS in various countries because the ancient, sentimental old men of the Politburo could not bring themselves to close them. But they perked along only half-heartedly, full of people wishing only to read Tolstoy in the original. UNCARTCULT tolerated these aberrations because there was no reason not to.

World population had stabilized by the turn of the century at about six billion. No one knew why. It simply happened, as if the result of some silent international agreement or universal urge. The witty said that this confirmed the old adage that the Lord looked after children, drunks and fools. UNCART had put

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the world on the metric system and traffic everywhere on the right side of the road.

Directors of the eight regional CARTS made up UNCART's Board. The Chairman's position was neither elected nor permanent. Each CART's Director took his turn as Chairman for one year, after which he retired. Retirement for the Chairman was not mandatory but was invariably observed. Who could possibly work again on the slopes after having been on the summit? The Supreme Commander cannot become just another General or Admiral.

Blessing had been Chairman for about half his term when the problem of the Encephaloprinter, or ECP, as SCI called it, had arisen. He had only two weeks to go when the Directors were again assembled to consider a far larger problem and to make a far greater decision. They were being urged, in effect, to change the personality of man.

II

THE development came about with stunning swiftness, direct result of the earlier decision to let SCI publicize the ECP. To an extent that surprised even herself, Dr. Gold had been startlingly correct. She had had no doubt that once SCI's community, her community, was turned loose on the ECP further development would come. What was not expected was the speed of this next development and the implications that were freighted with it, almost its own natural imperative.

An obscure technician in Milan named Guido Mangiani, exposed to news about the Encephaloprinter (ECP), invented the Encephaloimprinter, now called the ECIP. Mangiani was not even a scientist in the technical sense. He was one of the army of faceless, anonymous lab employees that set up equipment, monitored experiments, cleaned tubes, took readings and did other routine jobs for the scientists. He was, in short, a soldier, a sergeant at best, in UNCART's science army, doing the jobs that the field grade officers couldn't be bothered with.

His humble status was an embarrassment to SCI and Dr. Gold scarcely mentioned him when briefing the Directors. Indeed, after his one moment of glory his invention was taken from him and he was never again noted in the history of UNCART/SCI. He became a scientific non- or un-person. Presumably, he returned to the obscurity of the scientific KP from whence he had come. But, his invention, the ECIP, lived and had to be lived with, decided about, done something with. To that extent, Mangiani had been as anonymously immortalized as the Lascaux cave painters.

The usual one-page briefing paper lay before the Directors and again they read it with varying

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degrees of care and understanding. Dr. Gold had again screwed herself into the rug while she waited impatiently for the gentlemen to look up. She tapped a stylus against her thigh like a choir director as the eight tried to absorb the fact of Mangiani's invention, the ECIP.

Perhaps because he was more of a technician than a scientist, he had approached the ECP as an electronic device to be used and fooled with, experimented with, changed, like a teenager working on a car. His method had been empirical. While the scientists mused over theory and did not advance, Mangiani changed the ECP, added a playback and one day, without knowing how or why, he had invented the Imprinter. In experiments on animals, using his adapted ECP with a playback, he found that he could imprint certain personality traits on one monkey onto the brain of another. By taking the ECP tape of a docile, retiring rhesus and running it through the playback into the skull of a maladjusted rhesus he could alter its personality until the second rhesus was as gentle as the first. For some reason the playback forced the subject brain to respond to external auras just as did the brain of the pattern.

At this point the high-priced help discovered Mangiani and elbowed him aside. Further experiments were done without him and his device was given the official name, "The Milan Encephaloimprinter." It was called that in the Directors' briefing paper. In a burst of euphoria, at first sci believed it had a device of unlimited utility, a machine that could raise the level of all human intellect, that could pick and choose among man's most desirable attributes and assemble them into a master tape that would alter every brain and personality until humanity reached a single miracle working level barely below the gods.

But the gods were not yet ready to unlock that apartment just downstairs. The ECIP could and would transfer the ECP tape characteristics from one to another, but that was all, no more and no less. There could be no retail bargaining among its components because no one knew what parts of the tape came from which stimuli or what they affected. You took it all or not, as you chose.

"Well, practically, then, Dr. Gold," Togo asked, "what have you achieved with this device?" He repeated himself. "Practically, that is."

"Certain interesting things have been done with it in HUSYS," she said, and—"

"I beg your pardon," Togo said questioningly.

Dr. Gold paused, mouth open, stylus poised for another job. It took her several seconds to figure out just what the question was.

"Oh," she said at last, "sorry. Human Systems. Part of SCIPSY." She stood motionless.

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"Thank you," Togo said. The others nodded, some uneasily, wondering how many other sets of initials were equally unknown to them. Vast sections of this UNCART world of theirs must inevitably operate day to day entirely out of their ken or control. Better than most, the Directors appreciated their own humanity.

"You were saying, Doctor?" Blessing said, exercising the prerogative which time was inexorably taking from him. Oh, well, his company villa on the Eiger would, perhaps, not be all that bad.

"—and what they have done," she went on, beginning to move again, as if she had been frozen and was now suddenly thawed, "is to experiment with personality characteristics in certain people, common laborers mostly."

The Directors looked at her with renewed interest because this seemed to be an area of obvious economic application.

"For example," she said, "the SCI/HUSYS unit at FIAT/Chrysler/BMW in Turin imposed the Quality Reaction of good workers onto those of poor workers and the results were very rewarding."

"You said Quality Reaction?" Holdeman cut in.

She nodded. "Yes, it's a term we have started using to describe the response of Cox's Quality to the aura stimulus of people and things."

"I see," Holdeman went on. "In other words, this ECIP can alter a person's brains to respond like some other person's."

"No," Dr. Gold said. "Not quite. It can alter only Cox's Quality, whatever that is, not the entire brain. The ECIP process has nothing to do with intelligence or anything else except the brain's acceptance of outside aura stimulations, vibrations, or what have you."

Quiet settled on the room again. The sun had moved farther down one of the plexi-quartz walls and was shining brightly across the table in a pale yellow line. Blessing looked at the engineer in his soundproof booth, ran a finger along the yellow line and made a turning motion with his hand. The engineer nodded and immediately the sun wall darkened and the opposite wall lightened. Blessing sighed in satisfaction. Ah, he thought, sic transit, and all that.

Robert Ndolo pushed his chair back slightly and stared at the doctor, eyes large and dark in the long brown face with its strong straight nose. At times Ndolo could resemble a guardian image, a challenge immobilized in flesh. Dr. Gold acknowledged his stare with a nod.

"Mr. Ndolo?"

He shook his head. "Just wondering when we're going to find out about the FIAT workers, that's all. Regardless of how it's caused or

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what it's called, results are what count."

"But it's interesting, Bob," Holdeman said in defense of his incursion into theory.

Ndolo continued to look at Dr. Gold. She in turn waited for more questions, but then decided that the African's remark had moved discussion to a practical level. They wanted her to go on, were doubtless afraid of more digressions.

"All right, then," she said. "The poor workers took on the work personality of the better ones. Their production picked up, absenteeism fell, theft dropped off."

"Ah." Demchenko exhaled in relief. "We maybe have something here."

"Yeah, Viktor," Castenero said. "Maybe you will be lucky and they will give you my personality."

"You joke," Demchenko said seriously.

"No. No joke."

Demchenko sat up straight and pulled down his cummerbund over his round stomach. His moon face had a hurt look.

"I have a perfectly good personality," he said.

"Of course you have, Viktor. Very nice," Abbassi said with a hard look at Castenero. Demchenko looked around to see if the others agreed.

"Come, come, gentlemen." Blessing tapped his notaboard.

"So, Dr. Gold," Peng put in as if he had not been aware of the hiatus, "what you seem to be saying is that we have the means to revolutionize the world's work force. Is that correct?"

Dr. Gold traced a circle with her stylus and said with a shrug. "It seems so."

"Not the world's work force," bbassi cut in. "Ours."

"Ours?" Peng echoed. He seemed startled.

"You said the world's work force," Abbassi explained.

"Ah, I see." Peng made a slight motion of dismissal. "Ours—the world's—the same work force, is it not?"

"Of course, of course." Abbassi slumped in his chair, as though it were no longer important to him to be understood.

Castenero chuckled, reached under the curve of the table and slapped Abbassi's knee. Peng looked at them both without curiosity.

"Well, then to get on with it," Holdeman said, "I move we direct sci to find our best workers, print them and lay it onto the lousy workers." His thoughts began to take flight at the concept. "We could run production contests and use the winners as the models, as the analogues. Give them a bonus, too, of course."

A murmur of approval ran around the room. Perhaps today would be an easy day, an early day, an extra-martini-before-dinner day.

"No, gentlemen," Dr. Gold said sternly. They were so determined to

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be ordinary, she thought. "It isn't that simple."

Silent groans of "I knew it" floated up like ectoplasm and they sank back, waiting once more.

"Don't forget, I said Cox's Quality has nothing to do with intelligence," she went on. "After all, some of our best sensitives are morons. It also has nothing to do with strength or dexterity or good vision or almost anything else you can ask of a worker. It's really quite limited. It shapes our attitude toward the world and its impressions, not much more. Therefore, the winner of a contest may have won because of strength, dexterity, better vision, and a hundred other things our ECIP won't affect. In other ways he could even be a psychological monster that would turn our stomachs."

"But you said at FIAT—?" Togo asked the question many were thinking.

She nodded. "Yes, the analogues, as Mr. Holdeman called them, were picked very carefully and on a limited basis. Even there one or two got through with traits that weren't evident or desirable. These had nothing visibly to do with their work and attitudes but were not what we would want to spread to others."

"Example?" Holdeman asked quickly.

She hesitated, fumbled with her collar and reddened slightly. "Well, for example, I understand one man proved to be a secret transvestite."

THERE was a long pause and then a guffaw. Peng cleared his throat and motioned for quiet. He got it.

"But it is theoretically possible to succeed," he said.

"Of course," Dr. Gold agreed.

"It is then a matter of finding the right analogues, a matter of proper screening, vetting, if you will."

"That's it," Holdeman said. "We just have to be careful in selection—you people in SCI have to be careful in selection, that is." He finished lamely.

"Yes, that's possible." Dr. Gold said calmly. "We could without doubt find such people. But then what?"

"What, what?" Demchenko asked, moisture beading his bald head. He looked around as if to ask, "Is it me?"

"Simply this, Mr. Demchenko. We imprint the poor workers and they become like the best—at least in terms of attitude and motivation. What becomes of the mediocre workers?"

"Print them," Holdeman said confidently. Several nodded.

"And then that factory becomes the best and gets the bonuses and the free vacations to Colorado Springs or Ischia or Sochi or Bali," she went on, "and the others in the other factories see this and—"

"Print them too." Holdeman started to say this briskly but the

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'them' came out slowly and the 'too' extended itself on and on like an ooh of pain. The others were stunned too as their plan's implications hit them.

"You see," Gold said in satisfaction. *Take that, you little men!*

"Yes, yes," Peng said. "Very clear."

Holdeman was twitching in his chair with exasperation. Her superiority, which showed so clearly now, had gotten to him.

"All right, you win," he said.

"It is not a matter of winning or losing as far as I am concerned," she said loftily, but of course it was. "It is a question of how to use the Imprinter. How do we prevent inequality? How do we prevent strikes and riots? How do we prevent resentment against the analogues? How do we keep the maladjusted, non-imprinted, from taking advantage of the adjusted imprinted? Finally," and here she dragged out her words as if each were printed on a separate card, "where is that person you would want to be your analogue? That is the question we will eventually have to face, if you so decide."

They sat in morose silence, visions of happy, productive, undemanding workers, interchangeable human parts for the UNCART machine, gone glimmering like all good things. Dr. Gold was enjoying this. She had set them up, reduced them to helplessness. Now she would help them.

"I have brought someone I would like you to hear."

One by one they came up out of the depths. *At least,* they thought, *there will be an answer. Good* SCI. *Good Gold.*

She went to the monitor's booth and arranged to have the one door opened.

An extremely tall, thin, brown-skinned man stepped into the conference room. He acted dazzled and bewildered, like a person coming on stage for the first time. To the Directors, this was the normal reaction. This room and what it represented had humbled many men. On the other hand, perhaps the visitor was merely dazzled by the change in light. The room was, indeed, very bright.

"Gentlemen," Dr. Gold said loudly, "may I present Dr. N. K. Lakhshman of Delhi University SCI."

Now it appeared that merely the dazzlement had caused his confusion. His eyes adjusted and he looked around through his tinted glasses with assurance.

"Dr. Lakhshman is with SCI/ESCAT," Dr. Gold continued. She quickly raised her hand in a little admonitory gesture as she saw the question lights go on in their eyes. "ESCAT is, of course, SCI's branch of eschatology." She anticipated the next question. "Eschatology is an antiquated word to cover a somewhat primitive religious concept. It literally means dealing with

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last things, death and resurrection."

The still mysterious Dr. Lakhshman made a contribution. "Yes," he said, "it comes, I believe, from the Greek, eschatos, which means furthest."

My God, some thought. *Again another pigeonhole we didn't know existed.* But one had to have faith. After all you didn't have to know all the parts of a pulse air car to drive it. As managers they had to believe that they transcended the minutiae of the business. Big-picture men, all.

"All right," Holdeman said quickly, still annoyed. "You've told us more about the word than we care to know. Now what is SCI/ESCAT and what's he—" he started to point, but then thought better of it—"Dr. Lakhshman been invited for?"

"Of course, of course," Dr. Gold said placidly and went on in her own way. "We will get to that. But first another word about SCI/ESCAT. It is really an outgrowth of SCI/EXTRAP—"

Demchenko sighed and wiped his head. He muttered in Russian.

"—which stood for extrapolation, a word I'm sure you gentlemen are familiar with."

They all nodded brazenly, without embarrassment.

"THESE units of SCI," she went on unhurried, "were supposed to keep an eye on the broad range of SCI developments, see where they were headed, how they fitted together and, in a sense, predict what areas of SCI would be most fruitful. In short, keep an overview. Is this clear?"

Again they nodded. She had them well under control now. Lakhshman stood aside, arms folded, wearing a smile of satisfaction. This was his moment and well deserved too, he thought. Ability had at last been appreciated. They knew who he was at the Tehran Hilton where he occupied one of SCI's suites for distinguished visitors. UNCART owned the hotel, of course, and so was not really out of pocket, but then there had been the deluxe ticket on South Asian International from Delhi. They, too, had known who he was. UNCART owned the airline.

And the special reception committee from SCI and SEC that had met him at the airport, they had known him, had taken his bags, ushered him through the VIP lounge.

Dr. Gold was still talking.

"Extrapolation was fine, but rather short-range, particularly with the people we had in the old EXTRAP units. They were primarily one-discipline persons who talked to each other and pooled ideas. With the rapid advances we were making, that simply wasn't enough."

She looked around the table but they avoided her gaze.

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"Well, then, to continue. One of my first ideas, when I became Chief SCI, was to create a new group of people, a small group, who would go far beyond the limits set for EXTRAP. I conceived of the group as small, only one or two in each CART/SCI, educated in many disciplines and thinking in, in—" she groped for a word, and then she had it—"in cosmic terms about science and where it was going and should go as a whole, not as a collection of independent studies. Science has a will, an imperative of its own, and ESCAT was created by me to read this imperative.

"Dr. Lakhshman, here, is the product of my idea. How many advanced degrees do you have, Doctor? Six?"

Lakhshman gave a little deprecatory wave of the hand. "Eight, last time I counted."

Both scientists laughed. The Directors regarded them but said nothing. Again the stylus pointed.

Reinholt Blessing, the shir of time in his ears, wondered if he would be retired before it was all decided. He tapped lightly, almost absentmindedly, on the table.

"Of course, Mr. Chairman," Gold said. "We must indeed press on. Dr. Lakhshman is here because he has put his great abilities to the consideration of the ECIP and what it means. What is its imperative, so to speak. As he sees it, and I must say all of us in SCI agree, there are only two alternatives—two, gentlemen, only—and these are dichotomous. It is up to you to choose. After you have heard Dr. Lakhshman I think you will agree that the imperative leads us only to full exploitation of the ECIP." She turned to the Indian with a stiff swing of the body. The Directors could almost see her settle into the carpet another half thread's length.

Lakshman stepped forward and again folded his arms.

"THANK you, Dr. Gold. Gentlemen, let me summarize at the outset what I conceive the position of the ECIP to be. Dr. Gold has touched on the difficulties of imprinting selected people with the Quality prints of others. Jealousies will arise, have arisen in some of our experiments, hard feelings against the patterns, the uncertainty of bad side effects, the fact that maladjusted non-imprinted people can and will take advantage of, even persecute, the imprinted—in short, all the difficulties of creating an elite group among the non-elite. That has never worked throughout history. It is the stuff that martyrs are made of."

"Pardon, Dr. Lakhshman," Togo cut in, "if I understand you, we have very little to decide."

"On the contrary, sir. I beg your pardon, I am not used to such illustrious company and I do not know your name—"

"Togo. NIPCART." The Director

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half rose and bowed as he introduced himself.

"Ah, yes. On the contrary, Mr. Togo, you have it in your hands to put in action the greatest step man has yet taken."

The Directors muttered and turned to each other. They wree mostly methodical men and wanted no part of any great step for humanity. Dr. Gold caught this.

"We are not trying to be dramatic," she said. "We are merely asking you to consider what appears to be a perfectly logical next step." She put on her stiff, reassuring smile.

"Yes, logical," Lakhshman hurried on. "Certainly logical, but immensely important, historic."

Dr. Gold groaned to herself. Her creature was being carried away by his vision to the detriment of the argument. With his eyes firmly on El Dorado he was missing the poisoned waterholes between himself and the goal.

"All right, then, Doctor," Holdeman said, "what are we supposed to be historic about? What is the great step?"

Gold tried to stop him, her body lurched forward, still firmly screwed to the floor, her mouth opened—but too late—

"Why, why, to imprint the world," Lakhshman said excitedly, like a camp preacher with the word.

The Directors sat up as if their seats were wired and then slumped as the switch was cut. They were silent for some seconds. Even Lakhshman seemed stunned by the enormity of what had slipped out of him. This wasn't going according to the game plan he had worked out with Dr. Gold. He could tell this, too, from looking at her.

"It's an old joke," Castenero chuckled, "but I could swear he said, 'Imprint the world'."

"That is exactly what he said," Peng stated.

Blessing heaved a deep sigh and held up his hand.

"Please, please," he said, "Dr. Gold, Dr. Lakhshman, I believe we are getting involved in dramatics. Would you please explain calmly and factually what you have in mind?"

"Certainly." Gold said. "Dr. Lakhshman will make everything clear." She turned to him. "Go ahead, Doctor. As we agreed."

HE CAUGHT her meaning and proceeded cautiously.

"As I see it," he went on slowly, "we are at a crossroads. As we have learned, it appears impossible, dangerous, to use the ECIP in more than a very limited way. Therefore the alternative is to use it all the way, on everyone. That way man's personality will be unified, there will be no jealousies, none higher than another. In emotional terms, there will be no cruel to persecute the meek. Man will enter an era of

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unprecedented tranquility. This is what science has been working toward since the pyramids."

In this subdued incarnation Lakhshman was being more effective. Gold watched the watchers closely and she was pleased.

"And the other fork in the road?" Abbassi asked.

Lakshman dismissed it with a casual wave.

"Merely limited brain repair. Instead of the cutting and blood of a lobotomy we could imprint the severely maladjusted. Mechanic's work. A tragic waste of a heaven-sent gift."

"It is then," Abbassi sighed, "all or nothing—or almost nothing, very little."

Lakhshman nodded. "Yes, that is close to it, but it is not a frightening prospect. It is a glorious prospect."

Dr. Gold entered the discussion in an unexpected vein.

"Gentlemen, what we propose will make the world happier, a better place to live in. We will all be happier. We will enjoy life more. The little irritations will be gone. My God, that has been a goal throughout history."

"Yes," Lakhshman added, "we cannot make men into gods, nor perhaps even saints, but we can make them finer than they are."

The Directors sat glumly, considering. There wasn't one among them who was prepared for this, who wanted to decide any such thing. Did even UNCART have such a right?

"It is our duty," Lakhshman said.

Finally Togo put a question. "You said everyone. Do you really mean—?"

"Everyone," Dr. Gold said. "All or nothing."

"Everyone?" Demchenko said, swiveling his bald head around the room.

She nodded and Demchenko slumped.

"Of course," Peng said. "Of course."

After another minute Holdeman started the practical dialogue again.

"But is it practical?" he asked. "Six billion people—"

"Six billion, seventy-nine million, give or take a million," Lakhshman said. "Oh, it's practical. I have it worked out. Of course, we won't reach every last person. There will be Eskimos or Yetis or wild men somewhere that we miss, but that won't matter. The effective population can be imprinted."

"You said you had it worked out," Peng said. "Please elucidate."

Lakhshman had it worked out all right, no doubt about that, and he spent the next fifteen minutes explaining how it could be done. The computer confirmed him. The room darkened and charts came on showing the Directors the answers in oversimplified wiring diagrams

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and stick people, the kind used in demonstrations for children. It was plain, it was simple, it was good. The statistics had come from UNCART/PERS, another cachet of surety.

Lakhshman was planning to use ten thousand imprinting teams. This meant that each one of the teams would only have to imprint about six hundred thousand people. Each imprinter could be built to take connections for one thousand people at full power. Therefore, each team would only have to imprint six hundred batches.

"That's an average of less than two batches a day if we are to finish in a year," Lakhshman said comfortably. "Of course, the daily run would be higher since the process only takes two hours from beginning to end."

However, he went on, allowing for UNCART/SEC to gather the people, travel time, slippage, equipment problems and other difficulties, an average of two batches a day was comfortable and could be lived with.

"But, my God," Demchenko said, "ten thousand teams! Where can we find all those people?"

LAKHSHMAN smiled reassuringly and gave his standard soft hand wave, an intellectual brush-off. Dr. Gold smiled with him like a conspirator.

"Dear sir," Lakhshman said, pronouncing 'sir' something like *sorr*, "we have taken it all into account, I assure you. All has been thought out."

He explained to them that the word team was almost a misnomer. One person could use the imprinter, could in fact do the job. However, a team of two had been decided upon in case of illness, or other unforeseen problems.

"Besides," he went on, "it is useful to have one person just to observe the subjects. Some people, a very small minority, I might add, do not stand imprintation very well and must be stopped."

"But that would defeat the purpose, would it not?" Togo asked.

Lakhshman looked serious as if the gentleman's question was a good one and merited consideration, but his guns were already cocked.

"But such a tiny minority, sir, an infinitesimal group. They would stand with the Eskimos and Sasquatch that aren't worth pursuing."

"But all the same," Castenero insisted, "he has a point. One or two mean ones could ruin a whole factory."

Again the smile of beatitude.

"Fear not, sir," Lakhshman said melodramatically, "we have already considered ways of dealing with such people."

Dr. Gold spoke. "I don't believe we have to go into that here. Suffice it to say that UNCART/SEC has assured me that this small group of people will not infect the rest."

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"Isolation?" Holdeman asked.

"Something of the nature," she said. "I trust SEC to take care of such things. I have Mr. Paul's assurance."

Most of the Directors nodded and relaxed. Mr. Paul was Chief, UNCART/SEC. Let him handle it. Better not to go into a thoroughly specialized field.

"I understand then that twenty thousand people will be required," Peng said. "Is that correct?"

"Quite correct," Lakhshman answered.

"And where are so many to come from?"

Lakhshman explained that each of the SCI/PSY subunits would supply two thousand people or in total enough for eight thousand imprinting teams.

"And the rest?" Peng asked.

Dr. Gold answered for Lakhshman.

"We here at SCI/PSY headquarters can supply the remainder of four thousand people. Enough for two thousand teams."

There was quiet for a moment and then Abbassi spoke up in a mixture of surprise and alarm.

"We have that many people here?"

"Of course," said Dr. Gold, looking at him strangely.

Abbassi shook his head in wonderment as Lakhshman went on with the details. Teams could be assembled, ready for training, in a month to six weeks. After that, three months would be needed for the actual training period.

"That is, if you give the go-ahead today," Lakhshman added. "Any delay will, of course, lengthen matters."

"Gentlemen," Dr. Gold moved in again. "I have here some tentative scheduling of teams and dates which I will pass out to show you how simply and efficiently the project can be worked."

The men glanced over the papers she handed them. Most of them looked glum. They were faced with more than they cared to consider and they could not quite escape the feeling, either, that SCI was railroading the proposition. Their instincts told them, whoa, dig in a bit.

"I notice," Togo said, "that there is a strange distribution of imprinting teams. Those from my area, for example, are to go to USCART. SINCART teams to AMCART, SOVCART teams to EUROCART—"

Dr. Gold held up her hand.

"Yes, yes," she said. "All teams are assigned to other than their home areas. We think it best to keep the procedure as impersonal as possible."

Togo nodded slowly. The explanation had been logical.

The silence was incomplete. There was some shuffling and rattling of paper, much useless marking on notaboards. Plainly they did not want to make a decision. They could not forget that

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when they said "all," all it would be, themselves included. Dr. Gold swiveled impatiently. Lakhshman appealed to her with his spaniel eyes. She cleared her throat.

The dreamy glaze faded from Blessing's face. He said sadly, "Gentlemen, we must decide."

They nodded but no one spoke. This went on for some minutes without change in tempo, as though it would continue indefinitely, eight Directors sitting, hoping, aging, as one day succeeded another, still without a decision, or even the summoned will to try to make a decision.

Dr. Gold and Lakhshman smiled at one another like felons. This too had been expected and prepared for.

"If I may make a suggestion," she said.

INSTANTLY the Directors were alert. Hope, fond salvation, perhaps release—ah. They waited expectantly for this burden to be taken from them.

"Since it will take six weeks to assemble the teams and then three more months to train them, we can undertake a small pilot program to test the—to conform the feasibility of the idea. We can have a tentative result after six weeks before we start training in volume and complete results after the training period."

Ah, they thought again, relief, delay—ah.

"But you have already tried it," Peng said practically, and the others frowned at him.

"Quite true," Gold said. "We have tried it on selected people but not on selected communities. Whole communities would give us a closer approximation of the future."

"Yes, I see," Peng said. "Very true. Sound as a dollar."

She explained carefully that three plants and associated communities would serve as test areas. The sites had already been chosen. All were relatively isolated and therefore easy for SEC to seal off and monitor, assuring an uncontaminated test.

"Also," Gold added, almost as afterthought, "if anything goes wrong the situation can easily be controlled."

The three factories chosen were: the Lockheed/Sud Aviation/Marcel Dassault plant near Brasilia, the Goodyear/Michelin/Chemex plant in Central Africa, and the ICI/Atlas/Farben/Dupont plant near Dizful, Iran.

The old names of commerce survived under UNCART, strung out like memory beads. Once UNCART had established itself, it put an end to all the uncertainties, the bankruptcies, the failures, in commerce and industry. Companies could be combined, streamlined, reconstructed, but they could not go under. The old names gave UNCART a sense of continuity and legiti-

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macy, made them the rightful heirs to the throne.

"Sounds good to me," Holdeman said, clearly expressing the concensus. The others murmured their agreement.

"We do agree then, gentlemen?" Blessing asked. Seven heads nodded. Some looked at their watches. Two or three yawned and pushed their chairs back.

"Fine. Thank you, gentlemen," Dr. Gold said. She paused and looked around.

III

"THERE is one final thing to consider."

They looked at her incredulously. They couldn't believe it. She was like a dentist saying they still had time to take care of one more cavity.

"And, and, and that is?" Demchenko stuttered.

"Simply who is to be the analogue," she said quickly.

They hadn't thought of that. The gloom returned, deeper than ever. Lakhshman looked at them idly, curiously.

"Surely, you have a suggestion," Ndolo said from behind that strong-nosed bastion of a face. Dr. Gold did not notice his irritation, or appeared not to.

"Yes, of course," she said. "It is SCI's duty to present complete packages to the Directors." She surveyed them through her huge glasses, as if screening for disagreement. Then when satisfied there was none, she relaxed.

"I will let Dr. Lakhshman explain," she concluded.

He smiled and nodded his head in a truncated bow.

"As you know," he said, "a real analogue must be used. We cannot create one artificially or contrive one from parts. We must have an ECP print of a brain that is ideal in every respect we can measure for mankind as a whole."

"And for us, too, gentlemen," Gold put in. "We can't forget that."

No, they hadn't forgotten that and they nodded morosely. That was the problem. How could you order your own personality changed when you were perfectly satisfied with the one you had? But the thing had a logic that was inescapable.

"All right," Holdeman said with a sigh, "who is it? Surely you have someone in mind."

Dr. Gold and Lakhshman both started speaking at the same time. They looked at each other and he deferred.

"Yes," she said, "as I said, SCI always presents a complete package. That is our job."

It was Lakhshman who concluded the announcement. He said simply, "Thors Thorsen."

"Thorsen!" several Directors said at once.

The two scientists merely nodded.

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"But he's dead," Castenero said.

"We printed him shortly before he died," Lakhshman informed them.

"I might add," Gold said, "that his being dead is one more reason for choosing him."

Certainly Thorsen was a good choice and the more the Directors thought about it the less reason they had to disagree. Thorsen, a brilliant Icelander, had made outstanding contributions in many scientific fields. He had also been an excellent poet and painter.

In middle age he had given up his main works to go to the still relatively remote areas of New Guinea to live among the natives. He had set up a hospital and spent long years healing the sick. At the same time, periodically, a work of his humanist philosophy would be flown out of the bush to the expectant hands of his admirers.

His writing reflected what must have been an exceptional personality, one of great kindness, inner peace and harmony, yet possessed of an energy and drive few could match. Thorsen had been acclaimed a genius while he lived, a genius with many of the characteristics of a saint. In short, if the world were to have a common personality what better than Thorsen?

Gold and Lakhshman studied the Directors in silence. They could almost see the mental wheels turning. They could see the still useless struggles against the inevitable. And because they knew it was inevitable they could afford to be quiet.

"All right," Ndolo said at last. "All right. All right."

"Gentlemen?" Blessing asked once more.

"There is no one better," Peng said.

"If we have to—" Castenero said.

"Okay," said Holdeman.

"Let me add," Dr. Gold cut in, "because he is from Iceland there should be little or no national jealousy."

"Of Iceland?" Castenero chuckled.

"A good point," Peng added. "Not kind, perhaps, but a good point."

THEY were all nodding by this time and so it was settled.

"If I may clarify now," Blessing said. "Just so there will be no misunderstanding, beginning now SCI will start imprinting the workers and related civilians in the three factory areas we have named. The ECP print of Thorsen, the late—" Blessing bowed his head slightly—"will be used as the analogue for these people. In the meantime, SCI will gather the people who will be trained to form the imprinting teams. Right so far, Dr. Gold?"

"Quite correct, Mr. Chairman."

"This gathering," Blessing went on, "will take six weeks. At that time we will be given a tentative

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progress report from the test areas. The training of the teams will take about three more months, after which we—" He paused and a look of sudden grief wrinkled his face like a physical pain. He controlled himself and went on. "—after which the Directors will recieve a final report from the control sites. On the basis of that, the Directors will decide whether or not to go ahead with the whole program."

"An excellent summary," Lakhshman said.

They turned to the Chairman for a sign to leave. Their business was now over. Blessing sat staring at his notaboard. At last he spoke.

"Sorry, gentlemen. I was thinking how much I will miss being here when you hear those reports and make those decisions."

The statement was obviously sincere and somewhat sad.

"But, Blessing," Abbassi said, "the rules allow an ex-Chairman to sit in on meetings. He cannot vote, of course, but—"

"No, no," Blessing said, "it is not done. It is better so." Then he brightened. "Well, let us have some Beluga."

The mood changed. The Directors filed out noisily, almost like schoolboys. They headed for the bar where caviar and vodka awaited them.

Because the Headquarters of UNCART was in Iran the Directors had decided some years before to revive the almost extinct Caspian caviar industry. Through the cooperation of SOVCART/SCI/ECO/FISH and ASCART/SCI/ECO/FISH the Caspian was cleaned up, its level restored and its waters restocked with sturgeon. Now the Directors' cocktail tables bore large iced bowls of Beluga and of Golden, the caviar of Shahs. They spooned the caviar of Shahs. They spooned the caviar liberally onto buttered toast, squeezed lemon on the spread. They nibbled greedily, licking their fingers and washing down the treat with iced vodka, Makhsous for the persophile and Stolichnaya for the purist.

IV

TIME went by. The Directors said goodbye to their old Chairman and seated their new: Chen Tsing Peng. Blessing's place as Director from EUROCART was taken by Lennox Brown, and Englishman.

It was now the middle of summer. The great sun floated in the cloudless Persian sky like a burnished copper tray. The air was dry, desert dry. Even when they strolled through the gardens outside the temperature-controlled buildings, the Directors did not feel especially uncomfortable. The combination of hot dry air and cloudless, perfectly blue skies made their aches disappear and their spirits rise.

The day came for Dr. Gold's interim report to the Directors.

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After they had settled themselves around the table Dr. Gold came in towing a small man behind her like the Coast Guard rescuing a canoe. Some, but not all, of the Directors knew him. The new man, Brown, turned to Ndolo with a question but received only a muttered answer which he didn't understand.

Dr. Gold solved the problem.

"I believe you know Mr. William Ho," she said. "Chief/UNCART/PERS/STAT."

Physically Ho was tiny. He stood barely five feet tall and could not have weighed a hundred pounds. If not for his graying hair he might have been taken at a quick glance for a child. In introducing him, Gold had stepped forward and had disappeared behind her, almost as though through a conjuring trick. She had to look around for him to conclude the introduction.

"As you know, the initial six-week trial period of our imprinting project is now over. Mr. Ho is here with the latest statistics from the pilot areas. I believe you will be gratified by what he has to say."

Ho turned his little finger toward her in annoyance. He was piqued because she had given away the burden of his message. All that was left were dry statistics. He looked up at her bulk like a climber surveying the Matterhorn. She appeared not to notice. He turned back to the Directors, stiff-legged, if possible even more doll-like.

"As Dr. Gold has told you," he began, "I have here the statistics from the three pilot plants. I know you gentlemen are busy so I will get to the heart of the matter."

He lifted the sheet of paper, folded lengthwise, that he had been holding at his side and read aloud quickly.

"At the Dassault plant near Brasilia in the five-week period since the workers were imprinted with the Thorsen print, absenteeism has virtually disappeared. Production is up twelve percent and worker attitude has improved sixty-three percent, according to AMCART/SCI/PSY. An excellent result. In the Michelin factory in Central Africa, during approximately the same period, absenteeism has been reduced by half, production is up twenty-five percent and theft, astonishingly, has nearly vanished."

He paused to editorialize.

"I might say that these last figures are all the more startling because that particular plant was one of the worst in AFCART, a bad area for laziness, drunkenness and thievery."

"I beg your pardon," Ndolo said, banging the table.

"All right," Castenero said, seriously for him, "don't get worked up, Bob. He didn't mean anything."

"That's right," Holdeman said, "bigger things are at stake. But, Ho," he went on, "no more references that could be misconstrued, if you know what I mean."

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"Certainly." Ho rose on his little feet. "I am merely stating facts. That is my job. Unfortunately, the curse of nationalism is still—"

"Ho!" Peng cut him off sharply.

"Of course." Ho flushed and went on. "As I was saying the figures are striking. For the Dupont plant in Dizful the results are equally good. Absenteeism gone, production up thirty-three percent, attitude over seventy percent better, theft zero. Remarkable."

"Well, Dr. Gold," Peng said, "would you say we have a success?"

"UNDOUBTEDLY," she said. "The figures speak for themselves."

"Then, gentlemen," Peng went on, "do we agree that the imprinting teams may start their training, with deployment in three months at the latest?"

Peng looked from one to the other and each nodded. He came to Abbassi, who made no gesture whatever. Peng coaxed him. "It will be very good for UNCART."

"But will it be good for the world?" Abbassi asked seriously.

Silence fell on this vast irrelevancy. There were embarrassed coughs and foot shufflings. Ah, well, they thought, Abbassi was Persian and bound to be a bit quixotic. But a good head, all the same.

"I believe that is what we were talking about," Demchenko said at last.

"Quite," the Chairman said. He watched Abbassi, who nodded sadly at last. Peng continued. "I believe we can move on now. Very well, Dr. Gold, you may give the order to commence training."

"Thank you," she said contentedly.

"But there will be another report from the pilot plants in three months, will there not?"

"If you think it is necessary," she said, not so contentedly.

"I believe that was our agreement. Better safe than sorry."

"As you say," Gold said. "But there will be no change. There will be improvement, if anything."

"All the same."

"Quite," she ended the dialogue. She sailed out the door, towing Mr. Ho, just as she had entered. The door slid shut with a whoosh.

Peng said, once she had gone, "Now that we are alone, may I suggest that Doctor Gold is probably right. The report three months from now should cause no change in our plans. I see no need to call a general meeting at that time."

"You are sure?" Togo questioned.

"The chairman is supposed to relieve his fellows of as much routine work as possible. This next report will certainly be routine."

"And?" Castenero asked this time.

"If results are as expected I will consider the report and give the order for deployment. No point in a

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meeting. Besides, one or two of you are talking of taking leave at that time. You, for example, Fernando."

"Yes, that's true," Castenero said. "Well, it's okay with me."

"I don't see why not," Holdeman said.

"Yes, yes," Demchenko added. "No need to bother us."

And so it was agreed. As they filed out they gossiped among themselves, as usual, but Abbassi hung back, thinking, clinging to this moment before the project was underway.

But, all the same, he thought, *will it be good for us?*

V

It was now autumn in Tehran. The air was still warm and the skies clear, but occasionally clouds gathered over the mountains and peaks disappeared into thunder and lightning, like brown castings worked in a forge. This was a sign of the weeks to come when the rain would become a daily affair, pouring in sheets, running in freshets down Iran's bare hills and scouring its desert. The snow on Demavand that had nearly disappeared was already being refreshed, the brilliant white shine of it standing out clearly against the malted tan of the old.

It was a quiet period for UNCART and, as Peng had suggested, some of the Directors were not in Tehran. Castenero was in Acapulco. Togo was sunning himself in Hawaii. Holdeman was diving at Juan les Pins. Demchenko was at a resort in Yalta.

Thus half the board was gone. Only Peng, Brown, Ndolo and Abbassi were in town, Peng because he took his chairmanship seriously, Brown because he was still new and wanted to appear at least to pull his weight, Ndolo because he had nowhere in particular to go. As for Abbassi, his home was Tehran.

On the day of Dr. Gold's three-month report, Peng went early to his office, Ndolo took to the hills for some shooting, Brown sat at home reading back reports and Abbassi packed his family on a picnic to the Caspian. However, the four assembled at sixteen hundred to hear Dr. Gold. Peng had summoned them somewhat hurriedly and unexpectedly. Tomorrow the teams were to start on their way.

As soon as Dr. Gold appeared they could see that something was wrong. She looked pale, even gray, and shaken, as if something she held dear had been suddenly taken from her. Silently she handed around her familiar single sheets and stood stiffly, eyes shut.

It was fourteen forty-one hours in Yalta when Demchenko's beeper sounded. He put down his teacup, rose stiffly and went to the Heroic Worker's Hotel communications

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room to put through a videocall to Tehran.

It was an hour earlier at Juan les Pins when Holdeman heard his beeper. He was lying next to the pool, testing his flesh for doneness by seeing how long the white spot remained after poking. He got to his feet, slipped into a robe and went to his hotel room and its videophone. He punched UNCART's number in Tehran.

It was roughly a quarter to seven in the morning at Acapulco when Castenero was awakened by his secretary beating on the door.

"Mr. Castenero, Mr. Castenero," she called. "Are you awake?"

He awoke slowly and took in what was happening. He had been waked up, as had they all, many times on company business.

"What is it?" he said to the closed door.

"Headquarters on the phone, Mr. Peng."

He grunted. *I thought he wasn't going to bother us,* he mused. But then he flipped the switch on his videophone, put on a robe, slicked down his hair with his palms and waited for the screen to come alive.

In Hawaii, it was two minutes to five when Togo's call box sounded. He was insanely awake, sitting erect in a flash with his feet on the floor. He reacted like a fireman hearing the bell. Next to him his wife groaned and turned over.

"Yes?" he said into the caller.

"Call from Tehran, sir," a voice said. "You can take it on your bedside set."

"No," he said, thinking of his wife. "Put it through to the set in my lounge, if you please."

One by one they checked in and the four in Tehran watched the conference call screen as one quarter after another lit up with a distant face. The four vacationers on the other end could see, covering half the screen, their fellow Directors in Peng's office, grouped around him like a quartet publicity photo. A little to one side Gold sat solemnly.

Hm, Castenero thought, *she doesn't look so hot.*

The other half of the screen contained the faces of the three other missing Directors. Castenero saw Togo, Demchenko and Holdeman. Holdeman saw Demchenko, Togo and Castenero. And so forth. They looked curious, expectant, but not alarmed. At other times and in other places, the world's leaders so assembled could have waited only with the greatest dread to learn that war, or worse, had broken out. Now such doom was impossible. UNCART had planed down most of life's desperate bumps.

WHEN they were electronically assembled Peng looked into the screen for several seconds, as if trying to make out something about the others. Are they well? Are they enjoying themselves? Are they sur-

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prised, anxious? None of these?

"Everyone on scramble," he asked into the screen.

"Yes, yes, yes, yes," came back the answers like echoes.

Whenever a Director traveled a SEC/COM man went with him, carrying a scrambler that could be fitted to any video phone system in the world. It allowed the Directors complete privacy.

"We are assembled today," Peng started almost like a ceremony, "or rather I have made this conference call to inform you of the latest, and if I may say unexpected, results from our three pilot areas."

Lennox Brown hadn't quite got the knack of conference calls yet and he wasn't sure where to look. Nervously, he stared through his old-fashioned, but real, hornrims at Peng and then at the screen and then back again.

"Without further shilly-shallying or foot dragging," Peng went on, "I will simply read you the report."

As he read they noticed Dr. Gold sitting passively, colorlessly, like wax, the whole burden on her shoulders. SCI had failed.

Shortly after the glowing six-week reports were in, PSY/HUSYS in the three test areas began to notice a dramatic slide. Production fell off, sickness again shot up, theft remained down but the incidence of accidents rose dramatically. The pilot plants were worse off than before. Oddly, too, the plants listed a record number of suicides, all with no apparent cause. It was as if a number of people in these three widely separated areas had suddenly and together decided to stop living. So Peng read the dismal record. At the end no one had much to say. Peng sat with the paper on his lap, legs neatly folded.

"Anything else?" Holdeman said, the Mediterranean sun shining in the window behind him.

Dr. Gold slowly straightened in her chair.

"Just that in the last two months there hasn't been a single new pregnancy in any of the areas, either," she said listlessly.

"You mean," Castenero shot out in surprise, "people aren't even—"

"Exactly," Gold said.

"—any more?" he concluded.

"Then what is it?" Demchenko asked. "My God, what is it?"

She brightened a little. The chance for discussion, at least, was making her feel better.

"We don't know for sure. I believe I have a theory, though. We gave them Thorsen's entire Quality package. Thorsen was an unusual man of great intellect. The people we imprinted are not. They are ordinary, or less." A touch of the old, unchastened, pure Gold began to shine through.

"So they didn't know how to handle this package of qualities we gave them. Their brains weren't, aren't, up to it. When Thorsen became frustrated he had his mind to fall back on. When these people

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become likewise they have no inne. resource to help. When Thorsen's hospital grew tedious to him, and it often did according to his memoirs, he could move into a world of his imagination—or just plain stick to the job because he had self-discipline. Our people don't have his means."

"In short, they became bored," Peng said. "That's clear enough. We should have expected that."

"Yes," she said, "we should have."

"I see," Togo said from the screen. "They had no release for their frustrations. We have taken the natural ones away and the subject's were not deep enough to supply others of their own."

"Yes, I see too," Lennox Brown said hesitantly. "They are hopelessly, hopelessly bored with no chance for release."

"You can't give people what belongs to someone else," Abbassi said, and this simple, almost absurd statement struck them at that moment as being very profound.

"It isn't permissible," he went on, "to tamper with things lightly and easily as we do. Men should not surrender to the arrogance of power."

After a great pause that was almost one of embarrassment, Holdeman spoke again.

"Well, what now?" he said. "Obviously the teams aren't going out."

"Certainly obvious," Peng said.

"We'll put them back the way they were," Gold said. "We saved their original prints in case anything went wrong. We'll imprint them back. At least we can still use the imprinter on severe mental cases."

"And so it ends," Castenero said.

She nodded. "Yes, the great experiment. Man could have been so happy, oh, so happy. Science," she said, not SCI, "should have done this for him."

One single tear ran slowly down from behind the great glass slab of her left lens.

The great experiment had ended and the Directors went back to bed, or to the pool, or the hotel verandah. UNCART would put it all back the way it was, would make it all better again. Soon the world would again be free of the threat of tranquility, safe for tumult and turmoil and tension and temper and release from strain. It would be free for catharsis, big drunks, monumental hangovers and sleeping late, throwing the clock against the wall, missing work, dropping things that break, hiding in the toilet for a smoke, punching out the super and hanging tools in your pants until you clanked and had to walk carefully as you left the shop. In short, the world was once again condemned to be unreconstructed. As usual UNCART still went about its business. ★

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THE ORG'S EGG

PART II OF III

FRED POHL and JACK WILLIAMSON

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WHAT HAS GONE BEFORE

The astronomical object called Cuckoo is plunging toward the Galaxy. It is, literally, the biggest riddle in the universe: a body with the dimensions of a solar system, it is both impossibly large and impossibly light. With ten million times the Sun's bulk, it has only about ten times the mass. And yet, although its average density is not much more than a high vacuum, it somehow has a solid surface . . . and that surface is inhabited.

Human beings live on Cuckoo, or creatures so like human beings that it seems impossible they should not share a common ancestry with Homo Sapiens. [Yet Cuckoo has never been nearer Earth than it is now!] Because Cuckoo's surface gravity is so tiny, men can fly in its thick, deep atmosphere.

ORG RIDER *is a young man from a tribe of native wingmen. He is taller and slimmer than men who have lived their lives in Earth's gravity, but he is clearly human. He has set out to find an org's egg, hoping to hatch from it one of the great tameable flying creatures to use for a mount.*

THE WATCHERS *are among them, beetle-like creatures who are the overlords of his homeland, who rule by fear and violence, who make men their slaves.*

REDLAW, *a giant even by Org Rider's standards, and thickly muscled as well, is one of these slaves; but he escapes from them and joins Org Rider.*

The boy also encounters a tattered, hunger-crazed man, one who is strangely squat and thick to Org Rider's eyes; and, although they cannot communicate well, the boy begins to understand that the stranger is from outside his own world entirely.

BEN PERTIN *is the stranger's name, and he is one of a dozen or more identical copies of himself. Because the distances between stars are so great spaceships cannot travel between them in a human lifetime. Instead, a man who wishes to go from the Earth to, say, the planet of a G-type star near the Pleiades steps into a transmission chamber. Every atom of his body is marked and charted. A blueprint of his body is transmitted to the other planet. He himself steps out of the chamber unchanged—but from the blueprint an exact copy is created on the other planet. It is not radio that transmits these messages. Radio is too slow; the blueprints are carried on the charges of those strange, faster-than-light particles called "tachyons". Ben Pertin was born on Earth. One copy of him—call it the "original", —still lives there. Another Ben Pertin was transmited to the artificial planet called Sun One, the headquarters of the galactic federation of intelligent races. From Sun One still other duplicates of himself have been transmitted to the orbiting satellite that circles Cuckoo, and from it in turn still others have been transmitted to the surface of Cuckoo. Most of these have died; most of the survivors know that death is inevitable. The stranger is one such.*

While on Sun One Ben Pertin met and married a girl named

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ZARA DOY, *also a "copy" of a human still living on Earth.*

Now the original Zara has been asked to volunteer once again for duplication, to be sent directly from Earth to the surface of Cuckoo for exploration. She agrees—and invites her husband, a man Ben Pertin has never met and knows nothing of, to come with her.

And so the two newcomers from Earth come to Cuckoo. They know that it will be strange and dangerous. They do not know that among its dangers is a dying man who thinks he is married to Zara.

VII

ORG RIDER'S knife was at the stranger's throat before he could check himself. The man seemed both desperate and startled. He brought up his arm, less in a gesture of defense than as violent reflex. He was strong and his swing brushed Org Rider's hand and knife away, but threw the stranger off balance. He lurched against the rock wall behind the waterfall—his head met rock and he slumped to the ground, stunned.

Org Rider dropped to his knees and embraced the egg fearfully. Its bright curve showed no damage. He pressed an ear against its warm, pliant shell and heard the even, faint throb of the young org's heart—along with a random skittering that meant the creature was close to hatching.

Then Org Rider turned to the intruder.

The crawling sensation at his back was still there. There was no doubt of it, the man who lay before him was the man the watchers had killed. Yet here he was—alive. Cut, scratched and battered—all those things. But he was not dead.

Org Rider studied him carefully. The stranger's clothing was not quite the same as before. The colors were different and the puff-sleeved tunic he wore was torn and filthy. The bright, metallic objects on his arms also seemed different, but they seemed the same kind of things as those he had worn before.

No doubt about it—this was the same man!

It dawned on Org Rider that this man was the figure he had seen falling from the slamming machine. Perhaps in that lay some sort of explanation. Perhaps the machine laid eggs that hatched into identical creatures like this one. He had never heard of such a thing, but he had never heard of a dead man's living again, either.

Remembering that the man in his previous life had spoken a few intelligible words, Org Rider asked carefully, "Are you hungry? Do you desire food?"

The man opened his eyes warily. There was no comprehension in them. He stroked the metallic clutter on his wrist with his other hand as though the effort were too much for him, and motioned Org Rider to speak again.

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"Are you hungry?" Org Rider repeated. "I have some food."

The stranger shook his head, but his eyes fell on the pouch of food Org Rider had dropped. He stretched his hand toward it.

"You are hungry, then," said Org Rider. Quickly he cut a slice of flesh from a watersnake and tried it. The taste was sweetish and good. He put a thin strip of it against the stranger's bearded lips. The man whimpered and sucked at it eagerly.

"It will be better cooked," Org Rider said and offered some of the tender purple stalks. The stranger chewed at them while Org Rider whittled a drill, twirled it to light a fire and set some of the snake meat to roast. Before long the fragrance of roasting meat became as tantalizing to Org Rider as to his guest—they shared the first half-cooked strips contentedly while the rest continued to brown.

Then Org Rider forgot the stranger, because the egg made a sound like ripping cloth.

IN THE nest, the egg was rocking from the thrusts of some internal eruption. A dark split opened and spread. Org Rider squatted next to the nest, watching in fascination, urgently wanting to help but not knowing how. Inside the egg dull thumping sounds accompanied thrusts against the thick internal membrane. It ripped, and ripped again—and finally he could see the dark, wet head of the baby org, struggling feebly to emerge.

The stranger limped over to look, then shrugged and went to the waterfall. He drank thirstily, his eyes fixed on Org Rider and the hatching egg.

The org's head burst through the slit, slick and black. Almost at once it began to dry, changing to a pale, tawny color. The huge eyes opened, the pupils wide and black and mysterious, rimmed with luminous blue. It fixed its gaze at once on Org Rider.

Fascinated, Org Rider stared back. The baby org seemed to be resting and he thought he saw a plea in its gaze. For what? He could not guess until he saw that the infant was laboring for breath. He seized the edge of the glistening membrane and used his knife to widen the opening.

The great head reached out. The hatchling gave a strangled, mewing cry and its warm breath, sharply scented with the odor of parching grain, enveloped Org Rider. He leaned forward and wiped from the tip of the infant's emerging trunk a thick brown clot.

He relaxed his attention and realized for the first time that, over the splash of the waterfall, the stranger was shouting at him. The man was pointing at the sky. Were the org's parents still hunting their offspring? And then Org Rider heard a familiar whine.

It took him a moment to catch sight of the mottled ship of the

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watchers. It was flying low over the pool below the waterfall, its sound suddenly magnified by the surrounding black walls to a shout of distant thunder.

And Org Rider realized he had been seen.

He turned in indecision, peering back into the cave. Would they take the infant org away from him? Worse—he remembered the warning about the watchman's eye. He had thrown it away. Would they punish him?

The gaunt stranger babbled fresh gibberish, pointed again at the sky and Org Rider saw that a gray fleck had separated from the ship. The ship flew on, lifted over the rim of the canyon and away. The fleck dropped toward the pool and in a moment spread great wings and circled gently down toward the waterfall.

Org Rider pushed the stranger back into the cave and ran to his org. It had freed itself of the luminous membrane, except for a few rags that still clung stickily. Its tail unfolded, wet and delicate. Its whole body burst out in a rich cloud of that parched-grain fragrance.

It was twice Org Rider's length, now that its full dimensions had unfolded, but it was still an infant and drained of strength by its struggle to be born. Its short trunk lifted to sniff him—then it slumped to the damp rock floor of the cave.

The boy began to rub it down with his wadded shirt, crooning to it a song he had learned from his mother. Sleepily the org arched its thin body to meet the strokes of his hand, and its voice seemed to echo the song.

It was out of the question to leave the org and impossible to move it. It would be an hour or more before it could fly and he could not carry it and still manage the tricky rocks around the falls. He stared desperately at the stranger, wondering how to get him to help.

And then beyond the stranger, in the arch under the edge of the waterfall, appeared another figure.

It was not a watcher—it was human, tall, with a fire-red beard and keen green eyes.

"Redlaw," Org Rider gasped.

"Org Rider," acknowledged the giant, grinning through the flowing beard. "I see you've got your org after all."

HE REACHED out a hand. Org Rider drew back instinctively, fingers leaping toward his knife, before he decided the gesture was friendly and allowed Redlaw to shake hands with him. "I followed you here," Redlaw said. "Saw two adult orgs looking more frantic than usual and wondered if you were what they were worrying about. I see you were."

Org Rider grinned, then asked, "Followed me? But how? I got rid of the watchman's eye—"

The giant's laughter boomed. "Clever about it, too, weren't you?

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We located it—inside an org! The watchers aren't going to like it if they see you again, so I recommend you don't let them. So you'll have to lose that thing." His finger shot out to point at the compass on Org Rider's wrist.

"But that was my father's—"

"No doubt. But where he got it—or someone before him—was the watchers. It's trade goods and they can trace you buy it as easily as by a watchman's eye. Made for that purpose."

"If that's so—why didn't your friends come down and kill me?"

"Thank me, boy. I convinced them you'd been eaten by that org. When it came to explaining how one telltale was inside the org and the other here, I rose to the occasion. I told them the second one had been excreted. But you'll have to take it off before you leave here. Org excrement doesn't move from place to place by itself." He peered wonderingly at the stranger, then at the infant org. "What's all this?" he demanded.

Org Rider said proudly, "That's my org—I think he's hungry." Ignoring Redlaw for the moment, he ran to slice strips from the watersnake remnants and offered them to the hatchling. It devoured them, great eyes fixed on the boy. Its externals were now nearly dry. Most of its body loomed a pale gold, shading into white along the tips of its tail and its wings. Not yet scaled like the adult orgs, it was covered with a fine velvet that felt like fur but consisted in fact, of fleshy protuberances that would turn to chitin.

Org Rider fetched water and doled it out to the infant. While he was tending his org Redlaw spoke to the stranger. Org Rider paid no attention until he was called.

"We've got to move on, boy," Redlaw said. "Take off that compass. Don't break it—they'll know if you do. Just leave it."

"Move on where?" Org Rider asked.

"No choice, boy," boomed Redlaw. "This fellow you've got here—he's what the watchers are looking for. Says his name's Ben Yale Pertin—whatever that means. And he's from outside the sky."

"That's crazy," Org Rider said seriously. "There's nothing outside the sky."

Redlaw nodded. "Time was I'd have agreed with you, but the watchers think otherwise. They spotted him coming in. Right now they're not looking for you, but him. And if we want to keep him alive we've got to get him where the watchers won't look."

"Where would that be?" Org Rider slipped the compass off his wrist, stood gazing at it. "They know where this is. They must know you're here—"

"Not necessarily—but they might." Redlaw was thoughtful. "I crawled out through a disposal hatch when they weren't looking.

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But you're right about the telltale compass. When they miss me they might come zeroing in on it. And I don't know, boy. You think the three of us might travel fast enough to get out of range?"

"Four of us." Org Rider turned to look at his charge. "There's Babe," he said. "I won't leave him."

"Is that his name? Babe?"

"It is for now. And he's not ready to travel."

"You mean he might travel right away from you, don't you?"

Org Rider grinned. "I'm not taking that chance!"

A silence fell.

"I don't know, boy," Redlaw said at last. "One thing is—we can't just stay here. The watchers won't only kill us, boy—they'll feast on us—you, me and your org. That's a pleasure I'd like to deny them." He gestured at the stranger. "This other fellow might not be lucky enough to be on the menu. They'll want him to talk."

"Talk about what?"

"Where he came from. What he's up to, him and his friends that pop up all over." Redlaw looked ill at ease. Suddenly he grinned. "I know. We'll use their own telltale to confuse them. I can move fast enough by myself—I'll take it a good long way down Knife-in-the-Sky and drop it off a cliff somewhere. Let them hunt it there. They won't have any reason to come back here then, and this is as cozy a spot as we'll find." He was already standing, beginning to strap his wings on again. "Stay out of sight. I'll be back in a thousand breaths or so—if I'm lucky."

THE time stretched to more than a thousand breaths. It became fifteen hundred, then two thousand.

Org Rider could have stayed in the cave forever, delighted with watching his hatchling grow stronger with every breath, but the growth required food and he had at last to steal out from under the waterfall and forage. Redlaw had left his cleaver. Org Rider took it and bounded along the river course to the forest, where huge fat golden moths trailed gray wakes of sickly bittersweet fragrance. He despaired of catching one of them without exposing himself, but the trees themselves were sources of food. He leaped to hack off huge seed cones with the cleaver, split them open and found them full of edible seeds as well as wriggling, blind, horned grubs, probably those of the moths.

When he came back to the cave behind the waterfall the stranger was sleeping again. Org Rider regarded him with suspicion tinged with fear. He had not forgotten that he had seen this man die once. He did not understand how it was he was alive again, but something about all this made the bristles at the back of his neck crawl.

Still, for the moment, Babe was

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more important. The young org was awake and eager. He drained the water Org Rider brought him, then whimpered and crooned for more food. The grubs went into his capacious maw so fast that before the boy knew it they were gone and he and his sleeping guest—or captive—were still unfed. No matter. The humans could go hungry. A newly hatched org had to eat or die.

The stranger awoke briefly, barely long enough to drink some water, look around for food, find a few scraps and return to sleep. Org Rider sat with his hatchling, singing softly to it as his mother had taught him. It pleased him immensely to see it respond and fall asleep, but it woke again to be fed and the scraps that were left were meager.

Another thousand breaths later Org Rider decided he had to forage once more. At the waterfall's edge he paused uncertainly, then dived for the shelter of the vegetation.

At once he realized he was in danger. The rush of the waterfall had drowned the sound that came from the sky, the shrieks of the angry adult orgs.

He burrowed under a thick cluster of tough gray-green vines, inedible and useless to him but not, he discovered, to some tiny biting creatures that disputed possession with him. Hundreds of breaths passed before he dared venture out.

He stood beside the vines, listening. The shrieks of the orgs were far away again. But now came something else—a clattering sound, more like the sound of the stranger's slamming machine than anything else Org Rider could remember hearing.

A many-jointed object appeared over the lip of the canyon and dropped toward him. As it hit the pebbly fringe of the pool it made a clattering racket. It was followed by another similar object and then by the huge form of Redlaw, dropping easily down toward Org Rider.

Redlaw said, "There are orgs up the slope and a watcher ship is cruising around. Get this stuff inside."

"But I've got to find food—"

"You won't have a mouth to eat it with if we don't get under cover."

Org Rider could not argue with that clear wisdom. The many-jointed, clattering objects turned out to be collections of queer metal shapes, held together by vines. Org Rider picked up one, Redlaw the other, and they managed to get them inside the cave.

Panting from his effort, Redlaw said proudly, "I found it—I found his slamming machine. Couldn't carry the whole thing—it was banged up so bad. But I took all the loose pieces and brought them here."

The stranger propped himself on an elbow, staring at the collection of bits and pieces. He said something in his unintelligible speech and creakingly got to his feet.

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Dried blood was black on his nearly naked, half starved body. Org Rider felt compassion for him, mingled with the dread and the anger—actually he had little anger left, since Babe had not been harmed by the man's attempt to smash the egg and eat it, but there was still a vestigial core of dread.

The man shuffled over in his curious stumbling gait and thumbed through the hardware excitedly. He fumbled out a flat black oblong with a handle and touched it in some way Org Rider did not understand. It sprang open, revealing oddly shaped shining objects that looked like tools. With them the stranger began to assault the bangles he wore on his wrist. Org Rider involuntarily stepped back, remembering how those bangles on the other stranger had seemed to speak to him with a voice of their own.

"Go to it," boomed Redlaw lustily. "Fix up your gadgets for us. That's what I want you to do."

"What is?" Org Rider demanded.

"Why, I want him to repair those trinkets of his. They're powerful things, man! Weapons. Machines. I don't understand them, but I know they're something that's never been seen in the world before—and I want them."

"For what?"

"For the big job that's ahead of us. This funny-looking fellow is the key to our chance to deal with the watchers. Nothing in the flatworld has a chance to break their power, certainly not your people. Not even me, and I know more than anyone else you've ever met about weapons and how to use them. But this man has weapons I mean to have."

Org Rider stared at the scarecrow figure disbelievingy. "He's only a man," he said. "Not much of a man at that. Our potter was bigger than he is and I beat the potter in fair fight."

"You won't beat this one, boy. He's stronger than you think."

"Stronger than the watchers?"

"His weapons are. And he'll give them to us, I promise. Or—"

"Or what?"

After a moment Redlaw finished his thought somberly. "Or we'll kill him and take the weapons away from him," he said.

VIII

WHEN they stepped out of the tachyon-transport chamber, Jon and Zara Gentry were greeted by a female creature, human in shape, but with great angel wings. Her face was remotely, cruelly beautiful, but it was not the face of a human being and the Gentrys knew her for what she was, an edited version of some nonhuman race of the galaxy that had revised its transported copies into a physical form more useful in the environment of Cuckoo.

"Welcome to Ground Station

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One," the creature chimed in a voice like sweet bells. "My name is Valkyrie. I am pleased to see the first representatives of Planet Earth arrive on the surface of Cuckoo."

Zara looked doubtfully at her husband, then reached out a hand, which Valkyrie took politely. Clearly she had been with human beings in some other environment before coming to Cuckoo—the custom of a handshake did not disturb her at all.

Beyond the silver girl floated a glittering cloud that changed shape like a swarm of diamond bees, so tiny that the individual members were almost indetectable. Over them, partly obscured by their dazzle, a creature swam gently in the air. It had the wings of a butterfly and the head of a bat. Zara Gentry identified both lifeforms readily enough. The swarm was a collective entity—usually identified as Boaty-Bits—from a planet of a star in the constellation of Bootes. The single creature was a T'Worlie.

From the T'Worlie came a shrill whistle that Zara's pmal rendered into, "I identify you, Zara Doy."

Zara looked doubtfully at her husband, who shrugged. "I am Zara Doy," she said. "Or was. This is my husband. According to our custom I have taken his name and so I am now called Zara Gentry."

The T'Worlie did not respond. In the languid gravity of Cuckoo it did not need to exert itself to fly—it was enough for it to ripple its wings slowly. From it came a sharp but not unpleasant odor suggesting an open pickle jar in a warm pantry.

Neither of the Gentrys had ever seen Boaty-Bits or T'Worlies in the flesh before—if "flesh" was the right word. The two humans had no difficulty in recognizing the two alien species from stereo-stage pictures, but nothing in the stereo-views had prepared them for the sense of whirling power in the Boaty-Bits, or the acrid odor of the T'Worlie. "My identity," it rapped metallically through the pmal translator—how quickly, Zara thought, one became accustomed to listening to that rather than the shrill pipings of the T'Worlie itself—"can be described as one Nimmie. We did have mutual identification on Sun One, but I now perceive you are a different version."

"And I knew you too," sang the silver girl sweetly. "Will you look around your new home?"

It was a confusing new home. Its plan was hard to make out, but Zara Gentry had seen stereo-stage images of it—spherical shells blown out of some transparent golden-hued material, linked together and outfitted to meet the needs of its inhabitants. Some of those needs were bizarre, she knew. Parts of the complex were out of bounds to air-breathing mammals—places where the methane creatures lived, or those whose natural waste products were violently poisonous to humans.

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The largest of the bubbles was elevated above the others and from it Zara and her husband could look out to see a distant flat plain rimmed by mountains. They were themselves on a mountain, for she could see, just outside the bubble, rocky slopes that fell away endlessly. Turning to look out the other side, she saw a shelf of woodland and the rest of the mountain rising incredibly toward the sky. Its top was not in sight.

The inhabitants were as strange as the home. There was a curious thing like a single enormous blue eye that moved about without wings or legs, by the manipulation of electrostatic forces. When it moved it sounded like fine gravel thrown on a tin roof and the discharge produced a tingle of ozone. The creature was Sirian, Jon whispered. Beyond it he pointed out a thing like a rippling blob of baker's dough that he called a Sheliak. As Zara and he approached the shapeless bun it protruded a stalk that formed lips and made a sound their translators rendered as: "It gives joy to encounter you once more."

Zara found it disconcerting to be recognized by creatures she had never seen. Flushing faintly, she repeated her apologies for being a different version; apparently nearly all the beings here were direct copies from individuals on the artificial planetoid called Sun One, where all the races of the galaxy had representatives to mediate and interpret their differing interests and goals.

After so long a voyage—tens of thousands of light-years—Zara felt she should rest and freshen up. But of course tachyon transport was not tiring. The patterns of their bodies, carried by faster-than-light tachyons, had not really moved anywhere. When they were in transit they were only concepts, so to speak—they were patterns, and had no more sensation or thought than a schematic diagram. Nevertheless she was fatigued. It was culture shock, she thought—the impact of so much change in so short a time. She pleaded fatigue in any case and without demurrer—no two races of the Galaxy really understood each other's foibles—Val showed them their own quarters.

WHEN Zara awoke to her first "day" on Cuckoo she incautiously got out of bed as though she were still on Earth. Even edited, her muscles were disproportionate to Cuckoo's needs. She flew off the airbed as though it had exploded, catching her balance at the very last second necessary to keep from crashing into the wall.

The noise aroused her husband. He opened his eyes and said, "I dreamed were were on Cuckoo." He looked around and added: "I never had a dream turn out to be true before."

Zara was listening only politely.

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She had gone at once to their stereo stage to refresh her memory of the place to which they had exiled themselves for the rest of their lives.

Cuckoo was an enormous ball that hung in empty space, forty thousand light-years outside the fringing arms of the galaxy.

It had been a puzzle for all the galaxy's scientists since the cruising robot scoutships of the T'Worlie had first detected it. It was a perfect monad of polar opposites—huge and hard-crusted, yet with an average density not much above that of a total vacuum. Alone in space in the hard emptiness between galaxies, heading toward the Milky Way at a velocity that was a substantial fraction of *c*.

There was no such thing as day or night on the surface of Cuckoo. There was no external object bright enough to shed light on it. What light there was came from bright phosphorescing clouds that hung in its thick air.

It was as big as a solar system, nearly two A.U. in diameter. Did it rotate? Yes, in a manner of speaking—the question was confusing, coming down to rotation relative to what? Relative to the nearest globular cluster of the Milky Way, Cuckoo turned on its axis once every eight hundred-odd Earth days. To natives of Cuckoo the rotation would have been difficult to understand and of no importance at all; there was never anything to see from the flatlands where they lived, and even from the high mountains it was only occasionally that one might catch a glimpse of the Milky Way. It would take many generations to realize that that tipped spiral puddle of light rose on one horizon and, over the course of an Earthly year and more, slowly climbed to its zenith and disappeared below the western sky. The Milky Way was not the only thing that could be seen in the sky—M-31 in Andromeda was quite visible with a little luck, as were the Magellanic Clouds. But the Milky Way was by far the biggest and brightest, occupying nearly half the sky when fully risen.

None of these were of any use in telling time. Ground Station One was on galactic arbitrary standard time, a metrication that cycled at some thirty Earth hours. Zara found out quickly that it was close enough to a terrestrial day to be recognizable, different enough to be disconcerting. It made her first "day" unusually long.

Even so, there was hardly time enough to do all she and Gentry had to do. The briefings on Earth had been intriguing and even proved useful—but here in the face of the massive reality of Cuckoo, swelling all around them, both Gentrys had everything to learn. The process was exhausting. They spent hours just in learning to deal with the flimsy gravity of Cuckoo. Even in their down-muscled edited forms, every step sent them flying

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at first. ("I know you've been trying to lose a few pounds—" Jon grinned—"but this is ridiculous.") They had to learn to deal with the representatives of the nine other races in Ground Station One. T'Worlies, Sheliaks, Arcturans and all, each had their own purposes and needs and all had as much right to be represented here as had Earth humans. More, thought Zara fairly—the galactic culture exchange had been going for thousands of years before humanity had become aware of it.

And above al she and Jon had to learn what was on Cuckoo itself.

There existed, in the central workroom, a three-dimensional stereo stage program which, on command, conjured up a slowly spinning image of the body itself. Much of it was blank even yet. The tachyar mapping, scanning the surface of Cuckoo from the orbiting space station, had not completed even one full revolution and some ninety per cent of the surface of Cuckoo had been mapped only at extremely long range or not at all. This was not at first evident. The basic sphere was wholly featureless to the naked eye, except for some blurry discolorations. The program could on command magnify any desired portion of the surface. Where the scan was complete, such portions showed seas, mountain ranges, forests, deserts—a thousand different kinds of locale. The one little area they were now exploring, Zara saw with dismay, was only an insignificant point on the globe—yet it stretched half the diameter of Europe. There was simply too much to map. Less detail showed on their globe than the maps of the Elizabethan admirals had showed of the interior of Africa.

Valkyrie was a patient teacher and an even-tempered friend. Zara found herself relating to the silvery creature as though she were a human girl. It was a shock to her to remind herself that this shape was probably nothing like Val's real body in whatever hellishly inhospitable environment she had lived on her home world. It had been edited into a more viable form, but Zara knew very well that the shape they saw was not "Valkyrie's" own.

Fortunately for mankind, most of the races of the galaxy were close enough to oxygen-breathing, water-based mammals that the consensual common environment—races met usually in an atmosphere human beings could endure. Even races like the Arcturans and the Sheliaks could tolerate it. That it was not what they were used to did not matter, since one was robot and the other so protean that it could survive anywhere. Two alternatives existed for races to whom oxygen and water were poison. They could borrow the bodies of oxygen-tolerating species—humans were very popular for this—by inserting tachyon-coupled transponders into their

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brains. The bodies were then wholly controlled by the creatures who had taken them over. Zara had seen enough of such men and women, usually incurable criminals called "Purchased People." They were common enough on Earth. The other alternative was to edit the "pattern" transported by the tachyons into some form that could stand air, water and the temperature limits of the consensual environment. Val's people had chosen that way to go.

To be sure, editing was not uncommon for all races. Zara and Jon themselves were edited. Their physical strength was an actual handicap on Cuckoo, so their new bodies were altered in the physics and chemistry of the musculature to a sort of compromise between what was appropriate to Earth, and what was desirable on Cuckoo, where each of them weighed only a few pounds. At the same time their proportions had been altered, making them taller and thinner and thus less strange to the natives of Cuckoo.

THEY were impatient to start to explore the surface of Cuckoo—it was what they were there for. Val apologized in that voice like the tinkling of bells. Their equipment was not yet ready; their flying-belts had to be made to measure and their new measurements had not been available. They would come soon, she promised. Meanwhile . . .

Jon halted her. "What I don't know," he said, "is what happened to the other parties that have gone out. I understand they didn't come back. I don't know why."

"They all died," chimed Val sweetly.

Zara said, conscious of an unease in her body, "Well, we know that much. We don't know what happened, though." Something she could not quite analyze was working inside her—a feeling that she should be more terrified. It was death they were talking about—and an opposite, intellectual understanding told her that this life was only an appendage to her "real" life back on Earth and her death here would be only an episode that she "really" might not even ever know. The concept was fundamentally disturbing, a thought she could not quite deal with and could not wholly suppress.

But Val was answering their questions. "We have dispatched eight individuals to the surface directly from the orbiter, prior to the establishment of this station," she chimed. "All eight have terminated contact with the orbiter. Five are known to be dead. The other three are probably also dead. Six were humans and two were Sheliaks. Actually—" she corrected herself—"one was a human being and one a Sheliak, replicated respectively six and two times."

"Persistent human being," commented Jon. "What killed him?"

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"It is not known in all cases," said Val brightly. "Please come." She spread her great silvery wings and arrowed out of the smaller chamber into the great central bubble. A Sirian eye was hovering just before a stereo stage, patiently studying the scene it portrayed. It did not look around as they came in, but there was a strong sting of ozone in the air. Jon and Zara saw that there was a whole bank of stages beneath the transparent belt that gave them their view out onto the surface of Cuckoo, each with a different scene. Val touched the controls of an unused stage and it filled with a shining silver mist that swirled and hardened into an image of a mountain peak.

"This is the top of the mountain we are on," Val explained. "Observe the bare rocks. Look closely." She waved and the peak shot nearer so that they could see details. Something that glowed with a faint, unpleasant bluish sheen was clinging to the rock. "That slime," she said, "appears to be a part of a growth process in the mountain. It is violently corrosive—whether through chemical or radioactive reactions we are not sure. The second Sheliak came in contact with it and literally rotted to death while still in communication."

Zara shuddered. Jon said, "It sounds unpleasant." It was obvious that Zara agreed.

Val turned her harshly beautiful stare on him. "It is probably quite undesirable for organic creatures," she agreed. "As you know, Sheliaks do not experience pain in the same way as most sentients. This one was able to describe what was happening until its central nervous system failed entirely. It was not attractive," she finished thoughtfully. Zara wonderingly thought that, whatever the metallic form Val wore as a convenience, in her native state she might well be as frail and delicate as a human.

"There may have been other deaths due to the slime," Val went on. "The three of which we have certain knowledge, however—the other Sheliak and two of the men—were due to flying creatures." She manipulated the controls and displayed an org. "Also," she said, "there are intelligent machine-using creatures here of whom little is known. They may be involved. And, of course, there are analogues of many galactic races. There is no shortage of dangers on Cuckoo. We simply do not yet know what they all are."

Zara Gentry turned slowly, studying the bank of stages. The ones in use were panning slowly across a vista of woods, plains and lakes. These were only monitors, through which the sentients present in Ground Station One could see what was being transmitted to the orbiter and on by tachyon transmission to receivers throughout the galaxy. As they watched, one of the stages emitted a harsh electronic

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squeal for attention. It stopped panning and locked onto something large and winged.

"Found something," Val chimed. "That is one of the flying creatures. The stage is programed to follow it for a period of time, in case we wish to study it. If not, it will resume scanning shortly. And over there—" she pointed to the stage in front of the Sirian eye—"is what is perhaps the most severe real danger."

What the stage revealed was an actual vehicle. Zara said, "Machine users. The beings you mentioned?"

"Yes," agreed the silvery girl. "These creatures have no analogue in the galaxy. They are apparently evolved autochthons and may be eligible for participation in the galactic councils. But much of the other life is not native."

She touched the controls again and displayed a tree that seemed to be emitting a sort of shimmering fog.

Zara looked closer and gasped in surprise. "Are they bees? No, wait—I think they're Boaty-Bits!"

"Yes," chimed Val. "Bootians. And here is a recording of Sheliaks." She displayed another image, then another and another. "Antareans. Canopan semi-lizards. Some of these are not to be found in this vicinity, but do exist in other areas of the surface of Cuckoo. Altogether twelve of the sentient races of the galaxy have been logged on Cuckoo, including—"

She touched the controls again, and showed the figure of a tall, spare woman in a breechclout, grinding grain.

"Human beings?" cried Zara Gentry. "How did they get here?"

"How did any of them get here?" chimed the silvery girl. "To find out how that happened is our primary mission. It is definitely established that, however it happened, it was a long time ago—there have been marked evolutionary changes. You can see some physical differences in your own race, no doubt. And some of the species—Canopans and Antareans in particular—have regressed to nonsentient forms, or at least to nonculture forms. The Bootians may retain hive intelligence. We're not sure because we have not been able to communicate and, as you know, they do not under normal circumstances employ artifacts. The only ones we are sure are nonregressed are your own race and a small colony of Sheliaks, very far from here."

"It's crazy," said Jon Gentry.

The silvery girl laughed—a sound like sleighbells. "Of course. Isn't that why the object has its name? It was one of your own people, I think, who originally called it Cuckoo."

THEIR tailored flying equipment arrived, designed and built on Sun One and transmitted via tachyon. The Gentrys strapped it

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on awkwardly. None of the other sentients in Ground Station One could be of much help. Val had no need of the flying suits, having her wings. The Sirian eye, the Arcturan robot and the T'Worlie also had their own transport and, in any case, the anatomies were so different that the Sirian, for instance, simply could not understand the concept of a belt.

The first items the Gentrys put on were wings. Zara stroked them doubtfully; they were ridiculously tiny, proportionately smaller than the membranes that supported a flying squirrel. "They are only for directional control," chimed Val. "And perhaps for a gentle landing, if for any reason your drive should fail."

Zara was still doubtful. But her husband seemed to accept the equipment. The drive unit was strapped to their backs. It was a simple athodyd pulse-jet. It was designed to require only water as "fuel"—not really fuel, but a working medium that would have to be replaced as it was discharged. The actual energy source was a compact star of radioisotopes, which released heat on command. The heat flash-boiled the water. The exploding gas for the jet was only steam. The water was carried in two kidney-shaped flasks of soft plastic strapped around the waist.

"They look very small," said Zara doubtfully.

"The first exploring parties had larger drive equipment," chimed Val. "Some had actual vessels—the beings rode inside. To be so enclosed did not keep them alive."

Jon glanced at his wife and said quickly, "Let's try out these rigs."

The equipment worked beautifully. The hammering sound of the jet was unpleasantly close to the base of their skulls, but as the novices gained speed the sound dwindled behind them.

They returned to the bubble-complex almost regretfully. To be able to swoop and circle around the thick air of Cuckoo had been a joyous experience for the Gentrys.

The rest of their equipment was simple enough. Personal necessities: soap, toothbrushes, toilet paper, changes of clothing. Food supplies consisted of iron rations, heavy on protein and vitamins but by no means tempting to the palate or calculated to satisfy a large appetite. "I'm not too crazy about living on that stuff for a week," Jon grunted.

"You need not," sang Val. "You eaters can subsist off the native flora and fauna well enough. You have already eaten meals prepared from it."

"That steak last night?" asked Zara.

"Yes. And the salad. And the beverage. I myself need only energy and I get that from the power-packs. But I understand that as much of the biota here is edible as on your own planet."

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One item gave Zara pause. With some dismay she hefted a gun that had been custom built for her hand.

"The lower trigger is a projectile," said Valkyrie. "The upper, a laser beam. Lower for food, upper to kill instantly."

"What about you?" Jon demanded.

Valkyrie tolled somberly, "I have built-in weapons, Jon Gentry. We may all need armament to defend ourselves." She hung in the air, slowly fanning her wings, regarding them from bright, silver eyes. "You will need to sleep again," she said. "And when you wake we will begin."

Zara's breath caught in her throat. "So soon?"

"So soon," echoed Val.

WHEN her husband was already in bed, face turned away from the light, and the gentle sounds of his breathing were becoming deeper with sleep, Zara Gentry lingered in front of the tiny mirror, stroking her face with cream. She was not looking at herself—she was staring emptily and had forgotten what she was doing.

What had made her forget was something she had remembered—that light-years away another Zara Gentry was, at that very hour making her way through the crowded flyways of New York toward the stereo stage studios for her regular nightly appearance. What would she be talking about, this other Zara? Her emotions when she volunteered for tachyon transport to Cuckoo? Her immense relief when she stepped out of the chamber and found she was still on Earth?

Zara absently wiped the cream from her face and rested her chin on her hands, framing the sentences in her mind that that other Zara Gentry would be using to open the broadcast: *Well, friends, I walked out of the chamber and back to Earth* (cut to longshot of the tachyon-transport building, pan of the chamber itself with Zara coming out of it) *and it was queer. Queasy. I don't know how to describe it. I knew that here I was. And yet at the same time I was somewhere else—out on the surface of Cuckoo, so far away that I can't see it with the biggest telescope on Earth. I was entering a whole new existence . . .*

She caught herself reaching for the stereo-stage recorder to make a note of the opening for her next broadcast.

There would be no need for that. Not here, not ever here. Whatever else happened, this Zara Gentry was forever doomed to stay on Cuckoo. Oh, perhaps she could physically be carried to the orbiting station in a rocket if she swung sufficient weight. But that was most unlikely—and that she would ever leave in any other way was impossible.

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But after a moment she did reach for the stereo-stage recorder and said into it, "For transmission to Zara Doy Gentry on Earth. Zara, dear—dear me, I don't know how to address myself! But I am here and well. Jon is also well and in a few hours we are going to begin to explore the surface of Cuckoo. In my edited form I am tall and thin, just as I always wanted to be. And, dear distant self, I can tell you one other thing about me—I am afraid. Not panicky. Not crippled by terror. But scared."

Scared or not, she went on to give a bright, entertaining ten-minute account of what had happened since her arrival on Cuckoo.

It was the least a girl could do for herself, she reflected, settling gently into her bed. And it was oddly comforting to know that she would in fact be on the stereo-stage worldwide one more time—herself, not just that other Zara Gentry. As she drifted toward sleep she thought that a girl in her position could use all the comfort she could get.

A HUNDRED and twenty degrees of arc around the circumference of Cuckoo swung the orbiter called Cuckoo Station. It was a strange-looking thing, about the size of a three-story house in its main dimensions, with extensions that shot spindly towers a half-mile into space and trailed filmy sheets of laminated metal and plastic for more than three miles around it. It did not look as though it could survive the faintest summer breeze. This was correct. It could not. It never needed to, for Cuckoo Station had never known an atmosphere around it. It had been created in orbit out of the tachyon transport cell dropped by the doomship that had brought the galaxy's eyes and ears to Cuckoo and had then gone on with its dead or dying crew.

The sentients who inhabited Cuckoo Station were quite similar to those on Ground Station One. This was not surprising. Most of those on Ground Station One were duplicated copies from the orbiter itself. One individual who was not duplicated in the station on the surface of Cuckoo was the human being named Ben Linc Pertin. Partly this was because he had already been duplicated times enough on the surface of Cuckoo—he had watched himself die three ways so far and suspected three others. Partly it was because, for the past few galactic consensual days, he had reported himself sick.

He had felt sick. Sick and despairing. When he reported himself back for duty it was not because he really wanted to get back to his work on the orbiter—it was only because it, or anything, was better than lying in his cocoon and watching stale repeated dramas on the stereo stage. He relieved his predecessor on the monitoring detail, a T'Worlie named Nlem and, suck-

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ing a bubble of coffee to wake himself up, began to reel disinterestedly through the transmissions of the last few days to see if anything had happened.

Something had.

Pertin sat up so abruptly that his motion jerked the bulb of coffee out of his hand. Tfling, the Arcturan eye who was conducting some incomprehensible research of its own in the monitor chamber, emitted a staccato ripping sound of electrical energy as it flung itself desperately away from the sprinkling drops of liquid.

Pertin's pmal rang with the harsh, angry accusation: "Danger! Water deleterious. Destructive. Hostile action perceived!"

"Sorry, sorry—" Pertin tried to backtrack the stereo image and at the same time activate the emergency air-purification systems. He managed, but not with further anger from the Arcturan—reasonable enough, Pertin knew, but he was not in a mood to be reasonable.

As soon as possible, he spun back to the beginning of the message he had sampled. It had been aimed at Earth and, of course, intercepted routinely by the orbiter for information purposes. It was a personal message and the face of the girl sending it was what had startled him.

It was Zara.

He listened to the whole message, then turned off the stereo stage, sick again and dazed.

Zara Gentry?

And here on Cuckoo—only light-minutes away—but with Jon Gentry. Her husband.

Automatically his hand reached out for the transmission switch. He keyed it to the ground station and croaked, "Orbiter calling, personal communication, please respond."

The station was on its toes—or on whatever passed for toes in a T'Worlie. The creature who responded almost instantly stared out at Ben Linc Pertin and said through its pmal translator, "Greeting, Ben Linc. I have joy that you are well again."

"Thanks, Nlem," said Pertin. "I want-to—"

"It is now Nloom," said the T'Worlie. "Nlem is the version still aboard the orbiter with you. Nleem is the other version transported here."

"Nloom, then, damnit! Please. I have to get a message through right away."

"For whom is your message?"

"For my w—" Ben Linc stopped and swallowed. "For Mrs. Zara Doy Gentry," he croaked. "May I please speak to her at once?"

The T'Worlie, who ha dknown Ben Linc well enough in their time together on the orbiter, stared at him thoughtfully out of its enormous eyes. Finally the pmal chirped, "It was my conjecture you would have a message for her."

"Sure I would. Can I speak to her?"

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"Negative. She has left with a survey expedition. Their circuits are fully occupied with telemetry and necessary administrative communications at this time. There will, however, be a direct channel opening in —" the T'Worlie spun in air to look at something out of Ben Linc's field of view, then spun back to look at him—"in about two and one-half consensual hours. I can then relay a message if you wish."

"I'd rather talk to her direct, Nloom," Pertin pleaded. "Can you patch me through?"

"Affirmative," chirped the T'Worlie, "although that is, of course, contingent on Zara Doy Gentry's desire to use available time for that purpose." It hung there silently for a moment, then added: "Friend Ben Linc, it is a different version here. She does not know you, I think. What shall I tell her of your desire to speak with her?"

Ben Linc hesitated.

Of course the T'Worlie was right. This Zara had come directly from Earth. If she had heard of his existence at all it would have been only casually: someone her Sun One duplicate had met there and married. She did not know him; worse, she herself was married to another man.

What could he say to her?

To that question he had no answer at all.

"I don't know, Nloom," he said dismally. "I guess—I think you'd better forget I called. I have to think this over."

He flipped the switch that dissolved the compassionate stare of the T'Worlie into a silvery mist as the stereo stage went blank. He sat there, staring into the empty tank of the stage, seeing nothing, feeling nothing but a wretched, suffocating, overwhelming ache of loss.

IX

THAT other Ben Pertin who distinguished himself with the middle name "Yale" sat, filthy, bruised and exhausted, ravenously tearing with his teeth at the flesh of a kind of watersnake, watching the skinny young man croon at his monster, called an org.

He was delighted that the other human—or near-human, the one called Redlaw—had found his equipment and brought it to him. But it was badly damaged. He had managed to repair the pmal translator enough to get across a few words to the man and learn their names—the youth was called Org Rider—but the device was not functioning well. All he had been able to understand was that Redlaw wanted to use him to fight some enemies—why, he did not know. He also did not know if he had any freedom of choice in the matter. Was he an ally or a draftee?

But at least he was alive and he had not expected that much when

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the young man had caught him trying to break open the egg. The first thing Ben Yale had tried to get across through his pmal translator was an apology for that. He hadn't known it was a pet. He had only been hungry. Whether the youth had understood or not, he could not tell. That lean, sharp face was hard to read. The young man's words through the spottily functioning pmal had been hardly reassuring: "Mine . . . not kill . . . punish . . ."

Now the org was perched on a rock, swaying uncertainly as it regarded the watersnake in Ben Yale's hands. Pertin turned, watching the creature over his shoulder. It was still learning to keep its balance. Wings not yet unfolded, it looked ridiculous, like a trunk-faced, big-eyed fish with bird legs.

The exploring trunk reached out toward him and Ben Yale swore under his breath. He tore off a shred of the watersnake and threw it to the org. Org Rider cried something, which the Pmal clucked over without producing a single intelligible word. From the curtain of spray that concealed the cave the man named Redlaw called, "He says: 'Meat not spoiled? Not make org sick?'"

Ben Yale shook his head. "It doesn't seem to be harming me any," he said. The giant muttered something to the boy, who stared appraisingly at Pertin, then bobbed his head.

"Can give more," said the giant generously through the pmal.

"I think I'd rather have a drink," said Pertin, not caring whether the translator dealt with it or not. He pushed past the giant, under the shrouding waterfall and walked toward the lake, indifferent to the others.

Org Rider followed him, carefully scanning the sky. Pertin was not flattered. He knew the youth's concern was not for his own safety, but fear he might attract the attention of some predator or enemy to the cave.

Pertin knelt on the gravel beach and leaned forward on his spread hands to drink. The water was cold and good, but it gave him little pleasure.

His position, when he thought it over carefully, was not happy. The giant, Redlaw, seemed to want to talk only about weapons—and he had none. Weapons had not been in the junk the giant had carried from the wreckage of the ship. To Org Rider Pertin appeared to be only an inconvenience, possibly useful to taste doubtful meat for the org but otherwise a net liability. Neither of them seemed in the least interested in Pertin's reason for being on their world. What he had tried to tell them of the great universe outside had been received by the giant without comment and by Org Rider, apparently, without understanding; the pmal translator, in its damaged condition,

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seemed to function sporadically with Redlaw and almost not at all with the boy.

Ben Yale Pertin stood up and looked around him. He did not even notice the beauty of the scene—the deep, rock-walled valley in which he stood, the lazy waterfall behind him, the cold little lake with water so deep it looked black, the strange, colorful vegetation. From the orbiter the prospect of exploring these jungles had seemed interesting—to the extent that anything could interest him more than his own misery and loss of his wife and future. Back on Sun One, when he and Zara had been together, this adventure would have seemed enchanting, a marvelous holiday surrounded by beauty. And farther back still, on Earth, before he had ever submitted to tachyon transmission, when there was still only one of him and that one knew nothing but cities and crowding, this whole scene would have seemed a total fantasy.

Now his eyes did not even register its color or its strangeness. It meant no more to him than a cell.

By the side of the lake Redlaw and Org Rider were building a fire, roasting nuts they had gathered, muttering to each other, too far away for the pmal to pick up what they were saying and try to render it into English.

The giant stood up and walked easily toward Pertin. His green eyes were cold and judging. He put his fists on his hips as he stood before Pertin, towering over him by nearly two feet, and spoke in his liquid tongue, rapidly and at length.

The pmal, stammering to keep up, produced bursts of words: "Orgs gone. Watchers gone. Safe to travel. Can now find other slamming machine, other man like you. Can find killing things."

Ben Yale Pertin kicked a pebble aimlessly into the water. "Travel?" he repeated. "You want me to come with you somewhere, to find another ship with weapons?"

Redlaw nodded vigorously. "Go soon now, two hundred breaths," the pmal rattled. "Travel long, hard. You become ready."

Get ready? Pertin looked around him, almost smiling. What was there for him to do to get ready? What to pack, what to miss? He was ready to go anywhere . . .

But for Ben Yale Pertin where was there to go?

THEY did not dare to fly and Org Rider's muscles soon began to ache with the unaccustomed strain of trying to move at ground level, under the cover of the trees. The young org wanted desperately to fly, so Org Rider's task was twice as hard, for sometimes he carried the fledging and sometimes kept up a running stream of talk with it, encouraging it to keep hopping along on its wobbly legs, cajoling it back when it attempted to take off. That was what his mother had taught

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him to do—talk to the infant org, let it know always that you were there. She swore that the orgs could even understand words after a while, like human children. And indeed Babe already had seemed to learn what words like "fish" and "water" and "meat" meant.

That was more than the dumpy stranger knew. Org Rider had gotten over the superstitious fear he had felt when he had first seen the stranger bending over Babe's unhatched egg—he could not understand how this man could be alive when a dozen sleeps before he had seen him dead. But the puzzle had receded into the back of his mind and lost its power to instill fear. He wanted desperately to ask the man about it, but the clacking machine the stranger talked through did not seem to work well and Redlaw only shrugged and reported that he could not understand what the man had said to him. "The words are clear enough," Redlaw rumbled. "He says it was another him. How can there be another? He could not say."

When they had eaten four times they decided to sleep. They were a good distance from the last place where they had seen either orgs or watchers, and so they risked building another fire and roasting more of the green nuts that hung all about them. The stranger moved a little way apart from them and flung himself on the ground—in a moment he began to snore.

Org Rider stroked Babe softly along the gently squirming length of its trunk and listened to what Redlaw was saying about the stranger. "He says he comes from another world. He knows arts the watchers don't—arts that I think are strange and frightening to them. But he only speaks of these things, he does not have the weapons to prove them." Redlaw scowled at the fire.

"What is 'another world?'" Org Rider asked.

Redlaw shrugged morosely. "What he says about his world is not to be believed. He says it is not flat."

"Not flat? You mean mountainous?"

"No, not mountainous. Round. A little ball so tiny that men have gone all the way around it."

"That is unlikely," agreed Org Rider.

"What is even more unlikely," continued Redlaw, glowering across the fire at the sleeping stranger, "is that he says our world is also curved like a ball. This is clearly false, but he holds to it. He says that in his place everything is very heavy. A man can't jump much above his own height. And he says, let me see—oh, yes. He says that although there are trees and plants and clouds on his world, they do not glow of their own light. None of them."

"How strange! It must be a gloomy place. How does one see?"

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"There is one cloud," said Redlaw. "He does not call it a cloud, but it is in the sky, so what else could it be? It is so bright that its light hurts your eyes and so high that it looks quite small."

"I have never seen such a thing," Org Rider declared. He peered around, squinting through the leaves at the great flank of Knife-in-the-Sky rising above them. "Where is the way to such a place? Over the mountain?"

"Farther! He says you climb beyond the rain clouds and beyond the flying rocks. He says you come up into a darkness where there is nothing at all. The darkness is bigger than you can imagine—so big that, when you begin to cross it, our flatworld shrinks to a point you can't even see, like an org flying out of sight toward the top of the mountain."

"It is all too strange for me," said Org Rider uneasily, stroking Babe. "If his world is so far away, how is it that he is just a man?"

"He does not know, he says," growled Redlaw. "He says he and his friends came here for learning, and that is one of the things they wish to learn—how it is that he is so like us, though from so far away."

"I wish him luck," said Org Rider dubiously. "I saw the machine he came in. It made a great noise in the sky, like slam-bang-bang, slam-bang-bang. But in spite of all the noise, it was slower than the orgs. They ripped the wings off it and tore it apart in the sky. And when the watchers caught him, he died." Org Rider added thoughtfully, "I do not understand how that can be, either. But I have seen it."

Redlaw rumbled impatiently, "The man you saw die was another like him, he says. Part of that is nonsense, for he says it is him and says it isn't him—both.

"What is not nonsense," Redlaw added somberly, "is that he has something the watchers fear. I must have that from him, or he must die."

THEY traveled fast and far and the strain began to tell on all of them. Even Redlaw grew short-tempered and gaunt-faced. In some ways his was the most difficult job of all. Ben Yale Pertin was ill and injured—Org Rider had Babe to care for and often to carry, so it fell to Redlaw to keep alert for watchers or for wild orgs and there was never a moment while they were moving when he could relax. When they rested over the campfire they no longer talked amiably—they bickered. It troubled Org Rider that Redlaw seemed sometimes to believe in the stranger's insane stories and other times to hate and mistrust him. He could not hear the stranger directly. Whatever the machine was that Ben Yale Pertin wore on his armbands, it seemed to respond only to the squeals and whistles of the language of the

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watchers, not to normal human speech. So Org Rider could only communicate with him through Redlaw's imperfect understanding and he was not sure how much was getting across.

Conscience made him try to correct some of the stranger's errors. "I have thought," he told Redlaw gravely, "and Ben Yale Pertin is wrong about our flatworld. It is not round—my mother has told me this. And also I understand how he looks so like us."

Redlaw scowled at him, then guffawed. When he was done laughing he chirped for a moment in the language of the watchers, then turned to Org Rider. "Ben Yale wishes to be enlightened, young one," he said, his tone half laughing but not pleasantly. "So do I. Please tell us what your mother has to contribute."

The boy said stubbornly, "It is truth, all people in my tribe agreed to that. The flatworld was made by the makers." He peered into the fire, trying to remember exactly. "My mother used to say they were terrible beings, taller than people, shining with a light of their own. They sang deathsongs—and the songs themselves killed those who displeased them."

He waited for Redlaw to finish translating and chuckling, then went on: "My people came from seven eggs the makers had made, in a cave down under the bottom of the world. The eggs were guarded by seven keepers, but still they were stolen by the watchers. The evil creatures first blinded the keepers with death-weed dust, then stole the eggs for a feast. As our guest would have done with my org," he added carefully.

Redlaw choked, but managed to translate and receive a reply. "He apologizes again for that," he reported. "He says he was hungry and did not know better."

Org Rider nodded and went on. "The feast was to be at the top of the Watchman's tower, where the blinded keepers couldn't climb. But the makers were angry when they found the keepers blinded and the eggs gone. They did not sing their deathsong, but they sang a special song for the wild orgs. And the orgs heard it as they flew over Knife-in-the-Sky.

"Seven wild orgs dived on the feast and carried the seven eggs in different directions, all around Knife-in-the-Sky. The orgs hovered over the eggs, keeping them warm. When each egg hatched, it produced a boy and a girl and two of every creature that is useful to man.

"But the watchers spied where the orgs had gone—all but one. One by one, they found the eggs just as they hatched and devoured the hatchling creatures and killed the orgs that guarded them.

"But the seventh org they did not kill. It flew out into the shadow-world, where Knife-in-the-Sky hides the flatworld from the Watch-

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man's tower. Here the hatchlings escaped. Green grass sprouted from the droppings of the creatures. The boy baby and the girl baby were nursed by the wild org that had saved them. They grew to be man and woman and became the parents of all our people.

"And what has come to me," ended Org Rider gravely, "is that one of the other eggs did in fact get safely away, and its hatchlings were the parents of Ben Yale Pertin."

Org Rider paused. The giant was laughing boisterously. "What rot, boy! Ignorant superstition!"

Org Rider leaped to his feet. "It is as my mother told it to me, Redlaw."

"It is nonsense," Redlaw insisted. "You should spend a few sleeps with the watchers sometime. You'll learn the difference between savage myths and scientific truths. I do not know whose superstitions are worse, yours or Ben Yale Pertin's."

"And what then is truth, Redlaw?" Org Rider demanded stiffly.

"Ah, that I don't know," the giant confessed. "Some of the things Ben Yale Pertin says may have truth in them somewhere. He says our world may be hollow—"

"Hollow?" Org Rider cried scornfully.

"Yes. Does that seem unlikely? It does to me, too, and yet I know there are levels below. The tower of the Watchman guards one of the gates to those levels. I have been there while a captive of the watchers—and I know. And there is some truth in what your mother told you, too, I think. There are such things as keepers and watchers." He was silent for a time, staring across the fire at the sleeping stranger. Then he stood up. "It is time to sleep," he said, his voice hardening. "We are wasting time."

FAST and low, they kept going. They were halfway around the thrust of Knife-in-the-Sky's largest bastion, carried by Redlaw's driving purpose. For Org Rider that purpose seemed strange and remote. He could understand Redlaw's burning hatred of the watchers, who had enslaved him and threatened his life, but now that they were free of the watchers it seemed pointless to seek revenge. Org Rider himself was most occupied with his young org, which seemed to grow in size, intelligence and maturity with every breath. When Org Rider awoke, it was to the infant org hopping unsteadily toward him, seeking not food—he was capable of finding his own well enough by now—but affection, the ritual rubdown of his golden fur with a handful of moss. Org Rider did not neglect the duties his mother had described to him. In particular he talked to the org, crooningly, repetitiously, and was rewarded by having Babe repeat some of the words to him. If it mangled some of the syllables, it nevertheless made itself clear.

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Babe's stubby wings began to unfold as Org Rider groomed them. Tapered triangular fins, they had been molded invisibly into his sleek flanks. They looked almost too thick and too narrow to be useful in flight, but Org Rider's caressing fingers could feel their muscular power.

He decided to show Babe what they were for. He climbed a rock, the org hopping after him. Org Rider spread his arms, flapped them as he leaped toward another rock.

To his surprise, Babe understood at once—so quickly that before Org Rider had reached his goal, Babe came sailing over him on quivering wings.

Org Rider shouted in delight—but his delight faded and congealed into panic, as the org kept going, past him and up, up over the sheltering leaves of the forest screen. It wheeled in a climbing spiral, and screamed with a sound the boy had never heard it make.

Fear took the boy's breath. Was Babe calling to the wild orgs above the cliffs? He looked back to his companions for help. Redlaw sound asleep under a mossy rock. Ben Yale Pertin was watching apathetically. Without thinking, Org Rider crouched and kicked himself into the air, using every bit of strength in his legs and body, leaping a dozen times his own height, straight at the wheeling org.

Babe saw him and joyously dove to meet him. His young clumsiness made them collide, spinning Org Rider off balance, knocking the breath out of him. But the org was up to the needs of the moment. Org Rider felt the velvet trunk coil around him protectingly. Strong and supple, it held him, then lifted him to the org's sleek-furred back, just above the rippling wings.

Org Rider raised his voice in a shout of triumph. "Now I am truly Org Rider! Faster, Babe! Faster and higher!"

The org echoed in its piping voice: "Faster, Babe! Faster, faster!"

Org Rider clung with his knees, fists locked in the golden fur, leaning against the wind of their flight. The throb of wings became a purr as Babe dived across the treetops, climbed again and wheeled toward a clearing, so close above the yellow-bladed shrubs that Org Rider saw the giant moths fluttering about in terror. His first alarm became a wild elation. His own wings had never lifted him with such speed or strength. He clapped the org's golden flank and called into the wind, "Good, Babe—good!"

And the org piped happily, "Good Babe!" as it circled and dived again.

Org Rider found that Babe would respond to voice and tug of fists and kick of heels. Thoughtfully he drove the org back toward the clearing where the giant moths

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fluttered and cried, "Food, Babe! Get it!"

"Food Babe!" echoed the org and showed its understanding by diving at one of the moths to catch it in spread talons. "Home Babe?" it piped questioningly.

Org Rider cried, "Yes, Babe, home! We'll cook it and eat it. You've earned your food this time!"

They flew high while Org Rider searched the flank of the mountain for the place where they had left Redlaw and Ben Yale Pertin. All the trees looked alike to him, all the clearings much the same. He caught a glimpse of something metallic high on an outcropping, but it was not small enough to be Redlaw's cleaver or one of the stranger's peculiar instruments. He began to feel dismay—and then realized that Babe knew better than he. The org had already zeroed in on the campsite and was beating toward it powerfully.

When they landed he got of his org's back and said solemnly, "Now I am truly Org Rider."

Redlaw stared at him with anger and a touch of wry admiration. "Org Rider, yes," he rumbled. "But also a fool. Listen, Org Rider. What do you hear?"

Org Rider, perplexed, stood still, ears tuned to—what? A distant shrill whistle?

"Do you hear it? Do you see it?" demanded Redlaw. "Over there—beyond the trees. High in the sky."

Org Rider looked. He had not heard it because of the whistle of wind in his own ears, but now he heard it clearly and saw it, too, falling like a thick, blunt spear toward the slope of the mountain—a ship of the watchers.

"If they saw you," muttered Redlaw, "you will not live to be truly Org Rider very long."

THE sputtering pmal translator on Ben Yale Pertin's wrist caught only a few words, but they were enough to warn him. The watchers were nearby.

Pertin did not need to hear more, he had encountered the watchers. They were the ones who had shot his ship out of the sky of Cuckoo. In any other world they would have killed him, for he had fallen more than a mile, but in Cuckoo's gentle surface gravitation he had survived with only cuts and bruises. And would have missed those if he had been less panicked and in better shape, he knew.

That kind of knowledge was no comfort. Pertin feared the watchers. He feared dying, even when intellectually he welcomed it—there was no kind of future that looked good to him, unless by some miracle Zara should appear and offer a new life here. That was fantasy. Reality was that he would die here and would hate it.

Org Rider, ignoring the danger from the sky, was splitting and skinning the body of a golden-

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furred creature like a moth, spitting it over the fire. The yellow dust from the creature's fur gave Pertin a fit of sneezing, but soon the aroma of its roasting meat reconciled him to the dust. When it was done, Pertin humbly waited his turn. The best bits went to the org. Redlaw had second choice, then Org Rider. Pertin came last. But there was still plenty left, and it was delicious.

When they had finished eating rain had begun to fall, great fat slow drops that touched the fire and extinguished it. Gray clouds fell to the tops of the trees.

The red-haired giant bounded over to Pertin and shouted something that the pmal translator rendered as: "Rainclouds hide us from watchers. Now we go! Org Rider has seen your ship. We find it—get weapons to kill watchers."

"But you have been to the wreckage of my ship," objected Pertin, perplexed. "I had no weapons—"

"Not your ship—like your ship—" crackled the pmal. Pertin gave up the struggle to understand—it did not matter. What mattered was that they were to move again. This time Org Rider did not have to worry about his org, who flew above them, so he and the giant, unfettered, made fast time. It was all Pertin could do to keep up with them. They kept on and kept on. They did not even stop to eat, paused only long enough to pass around handfuls of roasted moss-nuts, now cold and almost tasteless—the trio munched them as they continued traveling. Three times they ate, pausing once to drink at a vine-covered stream and to relieve their bowels and bladders, then hurrying on.

Finally Redlaw and Org Rider stopped and waited for Pertin to reach them.

The giant said, "Look—beyond the gray moss, between the boulders. What do you see?"

Pertin tried to focus his eyes, dizzy with weariness. See? Yes, there was something there, something bright that caught his eye.

The glint of light was metal. He glanced at the others, then joined them in a stumbling, hopping run up the gentle slope. And there, partly hidden by purple-flowered moss, was the wreck of a machine.

It was not his ship. It was smaller and it clearly had been there for a long time. The moss had overgrown it completely, except for a few outjuttings of metal.

Metal? Yes, clearly it was metal. But something was strange about it. The color was not clean. It was stained with a watery bluish radiance that looked unfamiliar and vaguely ominous.

He scurried toward it. It must have been a man-carrying vehicle. Perhaps a machine one of his predecessors had used. He could not say. It was so broken that he could not be sure. He tore at the moss, peering inside through a dark

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opening rimmed with shattered crystal. A sharp scent stung his nostrils—it did not seem to be coming from the moss, but from the bluish coating on the metal. Now that he touched it, it felt slick, slippery, moist—oddly repellent . . .

A bellowing came from behind him and his pmal rapped out: "Do not touch—not—not—"

Confused, he stood up. Redlaw and Org Rider were coming toward him, anger and concern on their faces. "What's the matter?"

They stared at him curiously. They seemed to be looking mostly at his hands. For a moment neither said anything. Then Redlaw's voice sounded oddly gentle. "Clean hands," rapped the pmal translator without emotion. "Wipe on moss. Do not touch metal."

Pertin shrugged, not understanding. He seemed to have gotten some of the blue slime on his fingers. Obediently he bent and rubbed his hands on the soft gray moss . . .

What he was rubbing against, he suddenly realized with a heart-stopping sensation of nausea, had the shape and texture of a human skull.

He clawed at the moss. It was a skull! A whole skeleton, in fact, the flesh rotted away, but the bones still strangely dressed, under the moss, in the imperishable plastics of an explorer's jungle garb, red top, orange-and-yellow pants, great white gauntlets, and on the shrunken forearm bones the coils of translator, recorder, direction-finder, timekeeper and all the other regulation instruments.

The giant spoke, and the pmal chattered: "Danger. Do not touch bones. Serious. Be warned."

Pertin looked up at them, aware of the bluish radiance that clung to the bones, aware that it still befouled his fingers, in spite of his efforts to rub them clean.

"Danger?" he repeated dully. "Yes, I suppose so, if you say so. But you're wrong about one thing. They're not a stranger's bones. I know those bones very well, and I know the clothes they wear, too. I ought to. They're mine."

X

FAR away, around the great bulk of Cuckoo, the orbiter was preparing to transmit its observer along the tachyonic path FARLINK had charted to the source of the interfering transmission in the galaxy. They still didn't know how far it was, exactly. Roughly in the direction of Earth, yes—but at extragalactic distances that could place the source anywhere from Rigel to Canoopus and farther than that in the line of flight from Cuckoo.

Distance was only one of the unknown factors. Would the transmitted duplicate find breathable air and bearable temperatures when he stepped out of the receiving box—or sphere, or inflatable

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bag, or whatever sort of enclosure might contain an uninvited guest? Convenience alone dictated that all the intercommunicating galactic races use essentially the same sort of equipment. This wild card might take any form.

"I'm glad I'm not going," announced Ben Linc Pertin gloomily. He didn't sound glad even to himself. He found precious little to be glad about these days and looked forward to not much better.

Venus chimed softly, "I'm glad for you, too, Ben Linc. Replication is less hazardous for an edited form like myself."

Ben Linc Pertin in quick confusion said, "Oh, I'm sorry. I was just thinking—"

"That the mission is dangerous and unsure—yes. But it is less so for me. In any event," she continued melodiously, "FARLINK has chosen me and I have consented."

He said miserably, "I am sorry, Venus. I've been into my own troubles and not thinking about yours. I know how it tears one up to send a self away to suffer or die somewhere—I've done it often enough."

The silvery girl looked at him curiously. "That is so, Ben Linc. But—forgive me—in this form it is less painful for me. If I were in my own true form I would feel there was more to lose."

"Wait," the sentient ape named Doc Chimp II said, holding up a hand that contained a banana. "Here's a message just coming in—"

It was from FARLINK. The recreation room of the orbiter had no screens, but a signal light next to the wall speakers announced the source of the message and was followed by the computer's electronic voice: "Stand by—"

The primal of each being translated the words.

"Wonder what's up," mused Doc Chimp. "Well, cheers—" He held up his banana in a sort of toast. Pertin responded with his tumbler, while the silvery girl sniffed at cloudlets of luminescent mist she sprayed out of an atomizer.

"Orders," rapped FARLINK's voice. "The transmission of Replicate 4182, known as Venus, is canceled. A newly detected singularity in the incoming signals has altered the estimate of requirements. Stand by for assignment of replacement."

"Congratulations, Venus." Pertin again raised his tumbler.

"Orders," rasped the wall speaker. "The substitute for transmission is required to proceed at once to the tachyon station for replication. He is Replicate 5153, known as Ben Linc Pertin."

"Oh, no!" cried Doc Chimp.

"Communication of regret," shrilled the T'Worlie, Nimmie.

"I'm sorry, Ben Linc," whispered the silvery girl.

Pertin stood numb. He had not expected this—he did not know how to respond.

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"Replicate 5153," growled FARLINK from the wall speakers. "There is great time pressure. Proceed at once for replication."

"Come on, Ben Linc," said Doc Chimp as gently as he knew how, taking Pertin's arm. Venus took the other, and the two of them walked the unresisting Ben Linc Pertin along the corridors to the radial shaft that led to the tachyon transmitter. He let them. He felt nothing . . .

Nothing while he was on his way to the transmitter.

Nothing (except the sudden, surprising, hard metal lips of Venus against his own, just before he went inside) as he entered the transmitter and stood through its silent omniscient scan.

Nothing when he looked around, and realized *he* was that *he* who had remained behind.

Nothing while the chimp and the silvery girl escorted him back to the recreation room, the T'Worlie fluttering behind. They chattered doubtfully among themselves, then pooled their small quotas of open-choice mass to buy him two more tumblers of his favorite drink. He gulped them down, hardly tasting them. He was still *here*, as though nothing had happened. But he was also *there*.

And he could never come back.

Later—he was not sure how much later—came a final message of progress from FARLINK. "The transmission," rasped the speakers, "has been successful. First acknowledgment of arrival has been received, along with samples for environmental analysis. Unfortunately they are not life-sustaining beyond a fairly short period."

A small silence fell in the rec room before Doc Chimp said, "Well, anyway, Ben Linc, congratulations. You arrived."

"I arrived," Ben Linc agreed. "And I'm dead."

DOWN inside the atmosphere of Cuckoo, nearly two hundred million miles from the orbiter on Cuckoo's far side, the exploring team was practicing its flying skills.

The expedition, so far, was going well. From its altitude, miles above Ground Station One, miles out from the slope of the enormous mountain, even Cuckoo looked almost small—not the great sweep of its surface, to be sure, but the detail on it: tiny trees, winking bright puddles of lakes, silvery threads of river. The scene was broken by strange bright clouds that sailed above it, each seeking its own level and seeming to drop glowing spores that gave Cuckoo almost the only light it had, bar the glow of plants and animals on the surface itself.

The explorers did not know these glowing clouds to be dangerous, but gave them a wide berth. Anyway, there was plenty of room in the sky, not only to travel to a destination, but for pleasure, too.

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Valkyrie and Zara and the T'Worlie took joy in doing loops and barrel rolls, soaring far off from the little procession of Arcturan robot, Sirian eye and husband and returning. Zara found herself laughing from sheer physical joy. She weighed so little in Cuckoo's air that it was almost irrelevant whether she was flying head up or down. She followed the piping, frolicking T'Worlie up in a loop. Below her the great sloping flank of the mountain seemed to subside into a plain. Then the plain tipped and became a slope that rose in the other direction—next it passed out of sight completely as she topped out her loop and began to come down.

In her earplug communicator her husband's voice, faintly amused and faintly annoyed, said, "Will you three please stop playing? We'd better stay close together. This is dangerous territory."

Rebuked, Zara flopped over and flailed her wings to get her bearings. The T'Worlie, used to flight, darted back and hung before her, its batlike face wearing what she had to recognize as an expression of rueful embarrassment. She burst out laughing.

She caught sight of the silver girl, far overhead, power diving toward her with great, strong strokes. Zara cried, "Come on—race you back!"

She let them signal agreement and start their powerful, effortless flight back toward the sober, sedate members of the party. Then she aimed herself head-first toward the three distant dots, folded her wings except for a tiny web from wrists to hips for control, and activated her athodyd. *Thrump, thrump, thrump thrump . . .* The radioisotopes poured heat into measured slugs of water, flashed them into steam, expanded them into the pulse-jet and she arrowed toward her husband at a hundred miles an hour, easily passing the gallant but small T'Worlie, catching up with Valkyrie and leaving her behind. Stopping was the problem.

She shut off the jet and tried to lose speed by zooming up sharply, but in Cuckoo's wan grip the loss to gravity was so small she found herself looping the loop again, involuntarily, before, laughing and dizzy, she was properly back in line with the rest of the party.

Her husband turned to look disapprovingly at her over his shoulder.

"About time you got here," he grumbled.

Zara, who was concentrating on an even, rippling flow of her wings, gave him a docile, absent-minded smile. What a butterball he was, she thought dispassionately, even in his stretched-out edited version. His round body and pipestem legs made him look like a stork.

"The Arcturan's getting a strong signal from one of the spotters," Jon added. "That means we are getting near one of our objectives—

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probably a downed explorer ship."

"How nice," said Zara, winking at the silver girl. Valkyrie did not wink back; her copy of Earthly human anatomy was not accurate enough for such intimacies. But Zara could hear her tinkling laughter.

Three places ahead of her in line, the Sirian eye raised itself out of the file on its crackling spread of electric forces and turned to confront her. It had no expression, but she read reproof in its stare. The tiny sphincter mouth worked convulsively. Zara could hear no sound from it—Sirians used sound for communication, but the frequencies were far higher than those audible to humans. Twenty thousand Hertz was a low basso-profundo note for them. But the pmal caught it and rapped reprovingly in her ear: "Estimate: Your use of jet propulsion has increased our risk. Assumption: Such sounds in past have attracted predators. Validation: Air-palping reveals three unidentified traces moving toward us at three hundred and seventeen degrees right ascension, minus six degrees declination."

"Confirmed," stated the Arcturan robot without passion. It did not speak aloud at all. Its talk circuits used radio waves, but the pmal picked up and faithfully translated the message.

ZARA pressed her elbows into her sides and felt herself begin to drop. It was not what she had intended, but it was better than floundering around while she tried to adjust her telescopic visor to check out what the Sirian had told her. She caught a glimpse of something at the indicated position, realized she was falling farther behind and below the others than she wanted, flapped herself back into position and at last got a clear look at what the Sirian had reported.

There were three of them all right. Unidentified traces of what? She saw a body gleaming like metallic copper, stubby wings that shone silver at the tips; great claws that were coming out of concealment from under the creature's body in anticipation of combat.

For a moment she knew terror—then she heard her husband's voice, triumphant and challenging. "There they are!" Jon shouted. "I've got'em—"

And without waiting for the others he aimed himself and fired his jet.

Directly behind him, Zara got the full roar of the athodyd as it *thrumped* huge smoke rings of steam, thrusting Jon like an arrow toward the onrushing orgs. She was aware of a confusion of argument that the pmals were unable to handle—too many beings were shouting at once. What they were saying was clear enough, but Jon Gentry was paying no attention. He felt the hunter's taste for blood and he was on the kill.

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The orgs were wise in warfare. They split to come at this lone attacker from three directions at once. Against any of the beings that were their natural prey the strategy would have worked. Against galactic weapons it was hopeless.

Gentry's hours on the practice range on Earth had not been wasted. The first spark that marked the firing of his laser was a miss, but the second found a target. Three times the cobalt streak of his laser reached out to touch an org. Three times a creature screamed and each time the scream was cut off as the blue ray burned through scales and flesh. Each org flamed briefly, then tumbled slowly and ungracefully toward the mountain far below.

Gentry stopped his athodyd and returned by wing-power. Zara could hear him singing. He swooped past her, touching her with what might have been meant for a caress—it sent her spinning.

"Got'em!" he shouted. "That was worth the whole trip, Zara—"

The silver girl chimed, "It is true that you killed those creatures. I do not think it was wise to attack them single-handedly, however."

And the Arcturan robot muttered through its pmal, "Confirm statement as to organic creatures. Propose consequential probability. Premiss: Organic creatures are not principal adversaries. Second premiss: Use of laser weapons may alert more serious opponents. Deduction: Use of laser weapons may be counter-productive at this time."

"Ah," grumbled Gentry, "you're just scared—"

Illogically, Zara thought with resentment—all the galaxy knew that Arcturans could not be frightened, since they were not only nearly indestructible physically but had little emotional attachment to life.

Val chimed, "I suggest we proceed to our objective. I have a strong spotter trace from a point on the mountainside fifteen kilometers away, nearly in direction of flight. The characteristics are compatible with one of the previous exploration ships."

"Propose we go there now," twittered the T'Worlie.

"Why not?" Jon Gentry said, with careless courage. "I think we've seen we can deal with any problems that come up."

Zara dropped back a few meters to regard her husband curiously. This was a side of him she had not known very well. Of course, on placid Earth there was little occasion for physical conflict, but even so she could hardly reconcile this fire-eyed warrior with the gentle, sedentary, rather dull man she had been married to for three years on Earth. She had never questioned his courage. It had simply never occurred to her to consider it. If she had been aware of it at all, she might have considered it as a sort of mildly disturbing anachronism, like an excess of

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body hair or a desire for raw meat.

She was jolted out of her reverie by a sudden gabble in the pmals. Once again several members of the party were speaking at once. The first clear transmission was from Val, who called out, "I think we are in trouble—"

The trouble was confirmed by the Sirian's little sphincter mouth, which squeaked its inaudible message that the pmal translated as: "Air-palping now registers three new high-speed traces vectoring toward us. Correction. Four traces. Correction—five—six—six-plus traces. Points of origin widely separated. Suggest indications are technological intervention is now occurring."

T'WORLIE and humans, plus Val, tried desperately to see what the Sirian and the Arcturan had detected. Even for Val, however, the approaching objects were still out of sight, but Val confirmed the location.

"I have the trace," she agreed.

"Recommend seeking cover," chattered the pmal, responding to the Arcturan's signal.

Jon Gentry snorted, "What, run away? We've got weapons—let's use them."

Val pealed, "That is counter-survival, Jon Gentry. I have an alternative proposal. You organics seek cover. The Arcturan and I will intercept the arrivals."

"Concurring," chattered the Arcturan at once.

"No bloody chance!" Jon Gentry blazed. "I guess you don't know much about Earthmen—fighting's nothing strange to us. We came here to carry an equal share of the load and that includes fighting. We're not going to hide behind a bunch of aliens."

"He means," Zara said quickly, "that we feel an obligation to help. And honestly, Val—don't you think we can take care of ourselves?"

The silvery girl swept her great wings up to a point over her head, thus dropping and turning toward Zara. "Doubt it very much," she pealed. "Please study the approaching objects at thirty-four degrees right ascension, eighteen degrees plus declination." She paused while Zara struggled with her telescopic visor.

"Oh," said Zara at last. "They are—formidable looking, aren't they?"

They were that. Blunt spear-points, mottled in colors of bronze and gray that glinted with underlying metal, were arrowing toward the galactic party at supersonic speed. At first the explorers saw only two. How many had the Arcturan reported? More than six.

These explorers were not facing animals or primitives, but complex and powerful technological devices and, Zara thought with a sinking heart, no doubt armed accordingly.

"I accept offer," chirped the

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T'Worlie. "Come—" Nleem stood on his head in air and used his deceptively filmy wings to drive himself straight down at the forest cover beneath. After a spatter of electrical fields he was followed by the Sirian eye.

Zara wailed nervously, "Please, Jon—let's do as Val says." She tried to catch her husband's eye, but he was already higher than she, peering toward the approaching watcher ships eagerly. "Please?" she coaxed.

"Not a chance," he snapped. "You go ahead. I'm going to fight this out!"

"Then I'd better stay, too—"

"No way. Damned if you will, Zara—now get out of the way. There's going to be a fight and I don't want to have to worry about your getting hurt."

Angry and afraid in a way she could not define Zara turned herself over in the air, aimed herself at the rapidly diminishing forms of the T'Worlie and the Sirian and activated the pulse jet. *Thrump, thrump, thrump—* The acceleration was terrific. She was rapidly catching up on the Sirian and the T'Worlie.

Her previous experience had made her cautious. She did not want to overshoot this time—to do so would mean driving herself into the ground. She judged the distance as well as she could, allowed the jet to build up speed. When she gauged she had enough margin left she cut the pulse and arrowed down on inertia. At the last moment she rotated herself and applied maximum counter-thrust with the jet to slow her fall.

She had carried out the maneuver with considerable skill—as far as it went. Unfortunately, she had not had much practice with the athodyd, neither on Cuckoo nor on Earth, where this simplest and oldest of jet engines had been nearly forgotten. She did not know, for instance, that it relied for much of its thrust on the augmentation furnished by its forward motion. When it was reversed it lost a large fraction of its efficiency.

She discovered she had started the counter-thrust too late. It slowed her headlong drop just enough for her to hit the treetops at something like thirty miles an hour.

She hit hard, broke off sprigs and branches, went flying through a tangle of vines that ripped at her skin and bruised her brutally. Every snag hurt her, but every snag also slowed her, so that when she hit the soggy, mossy marsh under the trees she merely knocked herself unconscious.

When she came to she was alone.

She could see very little of the sky, but in it were neither husband nor allies, nor even the enemy ships that had been attacking them; and of the T'Worlie and the Sirian eye that she had been trying to join there was no trace at all.

TO BE CONTINUED

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SCIENCE FACT

JERRY POURNELLE, Ph.D.

A STEP FARTHER OUT

THOSE PESKY BELTERS AND THEIR TORCHSHIPS

THE other day I got a phone call from a national magazine, and being basically kind, generous and always in need of an excuse to stop working, I spent an hour with the reporter. He wanted a list of ten science fiction predictions that have proved out and ten more predictions which haven't happened yet but will.

What he wasn't interested in was a list of science fiction predictions that just aren't going to happen. Except in rare moods, neither am I. But I've just finished reading the death-knell for poly-water (it turns out poly-water isn't a new form of water at all; it's just a product of dirty laboratory glassware) and that, plus the phone call, got me thinking about nice ideas that just won't work.

One of the favorite sf themes is the "Belter Civilization" and its battle for independence from the colonial masters on Earth. Belters are asteroid miners—they flit from asteroid to asteroid, slicing them up for the mineral wealth they presumably contain.

In the usual story the miners go off on long prospecting tours, leaving their families on a "settled rock"—the Belt Capital (generally Ceres) or some other major body. When Belters get together, it's always in an asteroid city.

The Belters never come to Earth or any other planet. Indeed, they regard planets as "holes," deep gravity wells which can trap them and use up their precious fuels. The assumption is, of course, that it's far less costly to flit from asteroid to asteroid than it is to land on a planet or even get into close orbit around one.

Another common assumption is that fuels are expensive and scarce, and the Belters must conserve

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them—thus they never go outside the Belt if they can help it. (One supposes there's a local source of both energy and fuel in the Belt, of course, or there couldn't be a Belter Civilization to begin with.)

Fuel and energy aren't the same thing, by the way. Fission reactors could provide the power for a permanent Belt station; if we wanted to we could put a reactor onto an asteroid now.

But rocket fuels are something else again. To make a rocket work you must have reaction mass, something to get moving swiftly backwards and dump overboard. Unfortunately, asteroids are rock, and rocks don't make very good rocket fuel. We'll come back to what the Belters might do about that later.

For the moment, let's see how difficult travel to and in the Belt would be. We'll use the same measure as last month, the total change in ship velocity required to perform the mission. This is called delta-v, and you should recall that a ship with a given fuel efficiency and ratio of fuel to non-fuel weight will have a unique, calculable delta-v. It doesn't matter whether the pilot uses that delta-v in little increments or in one big burn: the sum of velocity changes remains the same.

We'll consider delta-v in kilometers per second (km/sec). By the way, I use metric system in all my tables and figures because there's no question about that sf prediction. The English system of measures will be as dead as the dodo within our lifetimes. Already Detroit is changing from the old SAE (Society of Automotive Engineers) standards to metric because so many US automobile parts are now assembled in foreign countries. The US Army is on a modified metric system now. Most businesses with extensive overseas trade must deal in metrics, and even the English are abandoning the English measurements. I also use the metric system to help me stay familiar with it, and I'm learning to "think in metric." You should try to do so as well.

It takes about 8 km/sec to get from Earth orbit to an asteroid. By comparison you can reach a Jovian outer moon for only 6.6 km/sec. The asteroids are hard to reach because not only are they a long way out, but they don't help you catch up to them. They've so little mass that you have to chase them down. Jupiter, on the other hand, will give you an assist.

Thus it isn't easy to go from Earth orbit to an asteroid. (I'm assuming that we have a launching system like that described last month, so that travel into and out of Earth orbit is "free".) Yet, travel from, say, Ceres to a theoretical asteroid 2 AU out takes only about 3 km/sec. (One AU or astronomical unit is the distance from the Earth to the sun and is 93,000,000 miles, or 149,500,000 = 1.5 x 10^8 kilometers. Ceres is 2.8 AU from

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the Sun.)

This looks pretty good. We'll save a lot of energy if we simply stay in the Belt, as is assumed in most sf stories. Of course, it takes only about 3 km/sec. to get from the 2 AU rock to Mars orbit (landing would take a lot more), but perhaps the Marsmen won't like having crude asteroid miners on their planet, or won't be able to provide a laser-launch system to get them in and out of Mars orbit. The Belters could build themselves a Capital at some convenient place such as Ceres just as easily anyway.

But how long will it take to get from asteroid to asteroid? We've calculated the energy requirements for Hohmann transfer orbits, and to use them you must start and finish with the origin and destination precisely opposite the sun. If you try to use something other than Hohmann orbits, the energy requirements become ridiculously high, as we'll see in a minute.

Well you get a launch window each synodic period. A synodic period is the time it takes two planets, or planetoids, to go around the Sun and come back to precisely the same position relative to each other—from, say, being on opposite sides of the Sun until they're in opposition again, which is what we'll need for a Hohmann journey.

The synodic period of Ceres and the 2 AU rock is slightly over 7 years. Worse, the closer the asteroids are to each other, the longer their synodic period. It's almost as bad for the 2 AU rock and Mars: nearly 6 years. Add to that the transit time, 1.8 years travel time between Ceres and the other asteroid, and you see what's wrong with the Belter Civilization. They aren't going to visit their Capital very often.

By contrast, you can get from Earth to the asteroids every year and a half, spending another year and a half in transit.

Perhaps, though, we haven't been quite fair to the Belters? Asteroids aren't all as widely separated as Ceres and the 2 AU rock. Most textbooks claim the asteroids are concentrated between 2.1 AU and 3.3 AU out from the Sun. We'll assume they're all in the same plane (they aren't), so the Belt area works out to $4.6 \times 10_7$ square centimeters. The books say there are about 100,000 asteroids visible with the Palomar Eye, but we want to be fair (and make things simple) so we'll assume there are 460,000 asteroids interestingenough to want to visit, or one every 10^{22} cm^{-2} within the Belt. That means the asteroids lie on an average of 10^{21} cm apart, which happens to be 10^{6} km or one million kilometers, about three times the distance from Earth to the Moon.

That far from the Sun's influence—and only going a million kilometers anyway—we don't have to use Hohmann orbits. One of the usual SF Belter devices is the torch

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ship, which accelerates half-way to it's destination, turns over, and decelerates the other half. We'll try that.

Once again, we're in trouble. We can't accelerate at more than about .001 gravity, because otherwise the total delta-v exceeds any ship we can build in the near future. Even at 1 cm/sec² acceleration, a thousandth of a gee, that lousy million kilometers eats up 6.3 km/sec delta-v—enough to get us from Earth to a Jovian moon! If we tried the trip at a full gee acceleration, we'd use 200 km/sec or enough for ten round trips from Earth to Ceres, and all we've gone is from one rock to another.

Clearly, we need better ships. We can't use Hohmann orbits and the rockets of the near future to build our Belt civilization because it takes too many years for the Belters to get together. We can't use continuous acceleration. Even if we could, we could only get from one rock to another in a very small region of the Belt. Oh sure, three or four asteroids in a cluster might band together, but they'd be totally isolated from the rest of their fellow Belters.

Our picture of the tight-knit Belt society, comprising hundreds of small worldlets, is vanishing fast. It's obvious, then, that we need *real* torchships. Craft that can accelerate continuously at a full gravity. After all at a full gee a torchship can go 2 AU in four days and get all the way out to Pluto, 40 AU, in less than three weeks! With those ships the Belt cities are no further apart in travel time than were Virginia and New England in Colonial times.

Before we get too enthusiastic about the torchships though, let's look at the delta-vee's they need. The 2 AU trip at a full gravity takes 3,460 km/sec; and the Pluto trip of 40 AU eats up 15,500 km/sec, or more delta-v than the entire US and Soviet space programs to date.

Recall also that it only took 10 km/sec to get from Earth to Ceres and you see the problem. With torch-ships, there's no trip in the solar system that you can't easily make. Why bother avoiding the 8 or 9 km/sec penalty for landing on Mars or going to Earth when you have thousands of kilometers-a-second to play with? The "holes" aren't very deep compared to your capabilities, and Earth is still likely to be closer to any given asteroid than will the Belt Capital, simply because Earth is closer to the Sun. There's a good chance that your Capital is on the other side of the system.

Furthermore, it's very hard to see how the torchships will work. In the old days they were "atomic powered" rockets—usually a fission pile. Well, we already have those, or very nearly had them. It was called NERVA, and it wouldn't do anything like that. NERVA is an atomic pile through which hydro-

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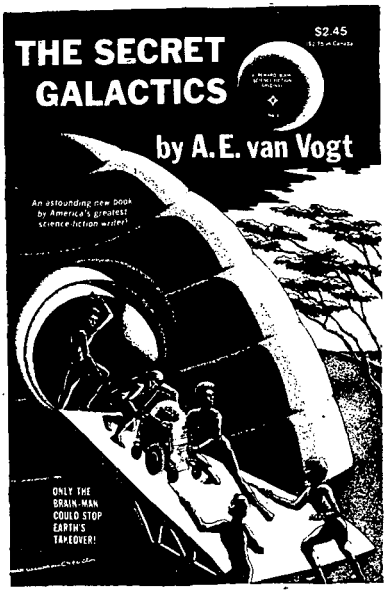
gen is poured. The pile heats the hydrogen which therefore goes aft, fast, and the rocket moves.

We could have built a NERVA engine by the end of this decade. The development was moving very well when Congress decided to cancel the program. Incidentally, more money is annually spent on lipsticks in New York State than NERVA was costing, and any medium sized state has more annual sales of liquor than NERVA cost over its lifetime. It's nice that they don't waste the taxpayers' money on frivolities like space. Editorials aside, NERVA would have been the key to manned exploration of the solar system, and it's reasonable to assume that somebody, someday, will use it for that.

Given reasonable mass ratios, NERVA would have had a delta-v capability of between 10 and 30 km/sec. Not enough to use it as a torchship, but enough to get you out to the Belt and let you have a look before coming home. Enough to let you explore Mars from orbit and land if you carried an expendable landing module.

It wouldn't have been a ship that you could build the classical Belter civilization with, yet NERVA is about the best thing we can foresee for many years.

Well, if NERVA, a fission system, won't do for a torchship, what about a "true" nuclear rocket: one that uses controlled fusion?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Thermonuclear reactions surely will give enough energy for torching, won't they?

Not by themselves. There's plenty of energy in fusion, but how do you contain it? On Earth, with huge tokomak rings generating enormous magnetic fields, we might be able to build a magnetic pinch-bottle to hold a controlled fusion reaction—although nobody's done it yet—but aboard a *space ship?* If you can build something light enough to go aboard a ship smaller than the *Queen Mary* and able to contain controlled fusion, you've got a device that will do far more than power a space ship. It's obviously a defense against hydrogen bombs to begin with. We'll discuss various properties of fusion powered ships some other time.

In order to get really efficient rocket engines you need high exhaust velocities. To get high exhaust velocities you need high particle energies. To get high particle energies you must have very high temperatures. Even the best NERVA systems have to handle temperatures of between 10,000 and 50,000° C, while the worst of the fusion systems have temperatures ten to a hundred times that high. No materials known can withstand them no matter how many tricks you employ. (Such as routing the cold fuel through the pile and chamber walls to cool them.) Fusion ships don't merely need fusion. They need an entirely new technology, and we've not even made a start towards that.

Well, what can the poor Belters do? We'll assume they have medium quality NERVA type ships, so that they can get around from Earth to the Belt, but what will they use for fuel? They can't take it all with them or they'll have no payload at all. NERVA ships use hydrogen, and there isn't a lot of hydrogen out among the asteroids.

Oddly enough, there is a propulsion system that gets terrific efficiencies, doesn't have excessive real temperatures, and can be built right now. Even better, it's likely we can find fuels for it in the Belt.

This is the ion drive ship. Ion drives employ metal vapors as fuel, and the metal is accelerated by magnetic fields, not heat. If the asteroids turn out to be rich in metals, some kind of ion rocket may be just what the Belters need. It lets them get fuel from the rocks.

It won't, however, be a torchship. A mercury vapor ion engine, for example, although capable of perhaps 100 km/sec total delta-v, only gives thrusts of about 10-: gravity. You travel very efficiently with ion drives, but it takes a long time.

No, the conclusion is obvious. With anything foreseeable in the way of rockets, the Belters aren't going to develop their civilization. They won't have ships good enough to let them reach each other. If they do get such ships, it will be as easy to

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TABLE ONE

Delta-v required for travel among Jovian Satellite system.

Name	Distance from Jupiter mil. km.	J-V Amalthea	J-I Io	J-II Europa	J-III Ganymede	J-IV Callisto	J-VI Hestia	J-VII Hera	J-X Demeter
Amalthea	.18	.007	9.4	11.9	13.8	14.5	13.4	13.3	13.3
Io	.42	7.7	1.69	5.7	8.1	9.4	9.6	9.6	9.6
Europa	.67	10.4	2.5	1.48	5.7	6.8	7.8	7.8	7.8
Ganymede	1.0	11.9	4.4	2.2	1.98	5.7	6.7	6.7	6.7
Callisto	1.8	12.9	6.0	3.7	2.1	1.63	5.0	5.0	5.0
Hestia	11.5	13.3	7.8	6.3	4.7	3.3	0.049	0.96	1.03
Hera	11.7	13.3	7.9	6.3	4.7	3.4	0.05	0.009	0.28
Demeter	11.8	13.3	7.9	6.3	4.7	3.4	0.01	0.003	0.001

All values are in km/sec. Values below the **diagonal** are delta-v's needed to go from orbit around one satellite to orbit around the other, landing on neither. Values above the diagonal are surface-to-surface velocity change requirements. **Diagonal** values are the circular orbital velocities of the moons.

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reach Earth as the other asteroids. With real torchships, both the Belters and the Earth Navy will have no trouble getting anywhere. Without them, the Belters are better off operating from Earth orbit than from their rocky Capital in the Belt.

I'm afraid the Belter Independence Movement is a long way off.

What with science robbing sf writers of Mars and Venus, and now the Belters, it's all rather sad. So I've been looking for something more cheerful—and I think I've found it.

Recall that it only took about 7 km/sec to get to one of the Jovian Moons. There are rather a lot of those moons, they're respectable in size, and they may well have water-ices, or methane, or some other source of hydrogen on them: fuel for a NERVA engine without having to send back home for it. The Jovian Moons offer a distinct possibility for a multi-world civilization.

The basics of travel near Jupiter are given in Table One. We've had to assume a lot of things about densities and the like to get these numbers, and by the time this appears some of the figures may be out of date. Pioneer will encounter Jupiter during the interval between now and the time this is published. I'll be the first to cheer if Pioneer makes hash of my assumptions.

Presuming it won't, let's look at travel amongst the Jovian Moons. Except for Amalthea down there close to Jupiter, the delta-vees are very reasonable, and we can do it all with NERVA-style ships. Moreover, the travel times are very short, and you get favorable geometry for a Hohmann transfer every couple of months or so. The four big Galilean Moons (J-I through J-IV) take about as much delta-v to travel among as it took to get from Earth in the first place. Yet you do it in weeks, not years. If there's hydrogen on the Gallileans—and it looks very reasonable that there will be—fueling your NERVA will be no problem at all.

The outer three rocks are extremely easy to travel among. You could do it with a backyard rocket burning kerosene. Since those moons are probably captured asteroids, they're as likely to be interesting as any of the other rocks the Belters are concerned about.

The Jovian Moons are compacted together. They're hard to get to from Earth, and easy to travel among when you've got there, and if there's wealth in the asteroids, there will be wealth in the Jovians. It all adds up to a powerful incentive for the colonists to deal with each other more and with Earth less.

So we can end on a cheerful note, saying goodbye to the Belters, but also making ready to greet the Minister Plenipotentiary and Ambassador Extraordinary from the Jovian Moons. ✱

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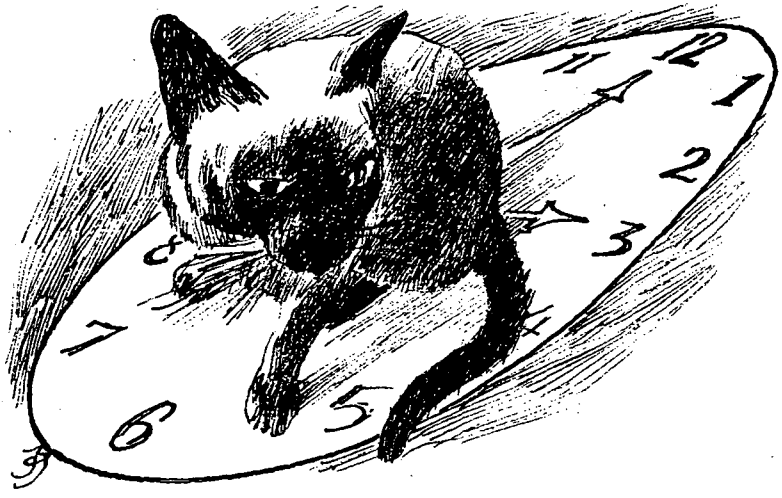
TIME AND DUCKWORTH



Another Duckworth concoction—
created on the spur
of the moment!

LARRY EISENBERG

IT WAS a new pocket watch, a gift from my wife with a loving inscription on the back, and I hastened to show it to my old friend, Duckworth. The great biochemist had his long nose into an open ledger in which he was slowly inking columns of figures.

"Haven't you heard about the computer?" I asked.

He didn't raise his head.

"Whenever possible," he said, "I avoid that simpleminded child of Satan. Particularly when I have important data."

I sensed that something important was in the air and I forgot about my watch.

"A new discovery?" I asked reverently. "Something along the lines of your macromolecules?"

"Broadly speaking," said Duckworth. He closed his ledger with a sigh of contentment. "Have you a

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minute or two to spare?"

"I'm always ready to listen to one of your great insights," I said.

He glared at me.

"If you don't stop that nauseating sycophantism," he bellowed, "I'll boot you out of here."

I lowered my eyes.

"I'll be irreverent," I promised.

"In that case," said Duckworth, "I'll tell you what I'm about. It's involved with time."

"Time," I mused. "That sounds fascinating. I've often pondered that seemingly irreversible flow of physical events. I wondered why it should all go in one direction despite the fact that physical equations allow for positive and negative values of time."

"So did I," said Duckworth.

"Moreover," I continued, "these events seem to be stored on one's memory as sets of impressions that demand quantification into seconds, minutes and hours. And yet Einstein pointed out in his historic nineteen-o-five paper on Special Relativity that every statement of—"

"For Christ's sake," said Duckworth. "Do you want me to tell you or don't you?"

I subsided petulantly.

"Not that I disagree," said Duckworth. "It's just that at the moment I'm not concerned with the nature of time, but with our apprehension of it. For example, I'd like to try a very simple test."

He glanced at his wrist watch.

"When I say, 'Now,' I want you to start estimating the passage of sixty seconds of time."

"Talking about watches—" I said, pulling out my new pocket watch. Duckworth didn't seem to notice.

"Now!" he cried.

I STRUGGLED with estimating the passage of seconds. I could have cheated by counting my breaths but I didn't. After an interminable period I called out, "Time."

Duckworth smiled.

"It's only forty-two seconds by my watch," he said. "But don't feel too badly. Most people do worse."

"My wife would have been much worse," I said.

"I'll ignore that bit of male chauvinism," said Duckworth. "I first became interested in this problem when I discovered anomalous effects of one of the helical strands of my macromolecule. I've since named the substance Perceptron and it seems to affect only those cortical areas of the brain which are concerned with the perception of time."

"Is it similar to the psychedelic drugs?"

"Completely different," said Duckworth. "For example, the motor activities of the subject are totally unaffected."

"How did you find out that Perceptron affects time perception?"

"Sweat and toil," said Duck-

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worth. "I had trained a cat to come for his feeding at exactly one hour intervals."

"Really? How did you manage that?"

"First I taught him to press a lever whenever he wanted milk. Then he discovered that unless an overhead light was on, he'd get no milk. Thereafter I switched on the light at one hour intervals. Pretty soon he'd only come around on the hour."

"Did he wait for the light before pressing the bar?"

Duckworth smiled.

"He did in the beginning, but then I stopped using the light. He knew it ought to be on, so after a while he'd press the lever. If he acted too late he got no milk. If he was too early he got a mild electric shock. In the end, he could estimate one hour's duration to within five seconds. Considering how much trouble you had with estimating a minute, you must agree it was quite something."

"I think it's incredible."

"Then," said Duckworth, "I began to feed my cat controlled doses of Perceptron, reinforcing the dosages with injections. He'd come every half hour, then every ten minutes and finally every minute."

"And what if you injected him with water or some other placebo?"

"He'd arrive on the hour, as before," said Duckworth triumphantly.

"Absolutely astonishing," I said. "Have you tried it on humans?"

"Not yet," said Duckworth. "After I'm convinced of its nontoxicity I'll ask for volunteers."

"You'll never get me," I said. "I like my sense of time perception as it is."

MY WORDS came back to haunt me when I was faced with a massive breakdown of my teeth. After my dentist, concealing his intense joy at uncovering a gold mine of repairs, described the extensive work required, I fell apart. He assured me that all of it would be painless and even showed me the gigantic needle through which the novocaine would course.

I arrived home that evening and downed three neat shots of Jack Daniels in rapid order. My wife stood by with raised eyebrows.

"I'd better hide the typewriter," she said.

"This trifling amount will not make me an alcoholic," I said. "Besides, I'm terrified of the ordeal I face in that butcher's chair."

"It will pass," she said with all the calm of someone who did not need dental repairs. "The time will fly, you'll see."

It was that vapid remark plus my deathly fears that reminded me of Duckworth's Perceptron. That very evening, noting that a light was glowing in his lab, I entered the chemistry building and pounded at Duckworth's office door. He seem-

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ed slightly annoyed at my noisy intrusion since he was involved with a tricky titration. He beckoned me to a chair and continued with his work. An hour passed before he took any further notice of me.

"All right," he said finally. "What can I do for you? It must be something special to keep you on campus after five."

"That's nasty and uncalled for," I said. "I've worked around the clock whenever the job demanded it. And in answer to your churlishly phrased question, the answer is I do need your help. I want a small but effective dose of Perceptron, enough to make one hour in the dental chair seem like one second. However, if you can cut that second down further, I'd have no objections."

Duckworth whistled.

"A thirty-six hundred to one reduction in time perception? That's more than I've ever gotten with my animals."

"I'm desperate, Duckworth," I wailed. "I'll take anything I can get."

"Well," said Duckworth, stroking his wispy beard meditatively, "thus far I've detected no unpleasant side effects in my animal subjects. But a cat is not a human."

"I'm quite aware of that," I said. "And I'll take my chances."

"One small problem," said Duckworth. "I know the exact dosage to produce prescribed effects on one of my cats. But I'm sure it will be different for you."

"So what does that mean?"

"It means that we ought to try preliminary dosages first. We can even start tonight."

"Do you administer it with a needle?" I asked apprehensively.

"You really are gunshy," said Duckworth. "No," he added. "I'll give it to you orally. But let me reiterate what I told you once before. Although your sense of time perception will be shortened, your motor activities should seem normal to the outside observer. That is, you'll walk at the usual speed, talk normally and so on. But to you, it will seem that everything has speeded up."

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"I understand," I said. "And now let's try dose number one."

I was swinging my arm to and fro and I placed a tiny pill under my tongue. And then the rate at which my arm was moving was impossible to detect. The movement became a blinding blur. An instant later my arm movement seemed normal again.

"It's over," I said. "The dosage must be too small, Duckworth. I'll need a longer period than that."

"Will you?" asked Duckworth. "You've been under for four and three-quarter hours by my watch."

MY TRIAL in the dentist's chair was an eyeblink, thanks to Duckworth's Perceptron. Afterward I raced to his laboratory. I would have kissed his hands but I knew he'd resort to violence. So I gave him a brief, lyrical verbal report. In conclusion, I added: "You've produced a boon for all mankind to enjoy, Duckworth. It'll get you a third Nobel prize."

"Impossible," he said. "I don't plan to publish a word of it."

The room reeled about me.

"Are you out of your mind?" I cried. "Perceptron is the Tenth Wonder of the World. You *must* reveal it to all mankind. It will help them get through those unbearable interludes."

Duckworth shuddered.

"And who is to say what is unbearable? If I make this stuff freely available to all, people will be burning up large chunks of their lives in order to avoid crises. Every adolescent would want to zip through these tortured acne-ridden years. Every pregnant woman would shrink down those nine months. I don't believe in inflicting unnecessary discomfort on people, but some of it is a necessary and important part of life. In fact, it may well provide the background for making pleasurable moments so joyful."

"Rationalization," I said scornfully. "I don't believe a word of it. One could use that same argument against every painkiller man has devised and believe me, Perceptron can be the greatest painkiller of all. You *must* release it."

"I'll think it over," said Duckworth.

I DID not pressure my friend further. Weeks went by, then months. One day Duckworth disappeared. I was not worried. I knew that my friend was wont to steal off when heavy moral questions needed thinking through. And then he reappeared at my computer lab, haggard, wan, but clear-eyed. I put my arm about his shoulder.

"It's good to have you back, Duckworth. I missed you."

"It's good to be back."

"Where have you been?" I asked.

"Soul-searching," he said. "I packed a loaf of bread, six bottles

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of *beaujolais* and the Rubaiyat in my knapsack."

"And what were your conclusions?"

"Come to my office this afternoon. I'll give you my answer at that time."

I arrived at three o'clock and found Duckworth scribbling in the ledger notebook. He put down his pen and looked at me candidly.

"I've decided to follow your advice," he said. "While I don't agree with you, I've concluded that these qualms are products of my Protestant ethic, hangups of excessive zeal."

I put out my hand for Duckworth to shake. He stared at it for an interminable length of time. I wanted to ask him what was going on but the words simply would not emerge from my throat. After what seemed like months, I heard sounds teasing out of my mouth at an excruciatingly slow pace. And then it was over.

Duckworth seemed to take no note of my difficulty and simply shook my hand.

"Have you no heart?" I asked.

"No what?"

"No heart, no sympathy? You see me standing there, struggling to talk and you ignore it?"

"Are you out of your head? You weren't struggling to do anything."

I was exasperated.

"Duckworth," I said. "Surely you just noticed that I was holding out my hand to you for what seemed like months to me, trying to say something to you—and I couldn't do it?"

A look of panic swept over his face.

"Come inside to my lab," he said. "I want to take a small sample of your blood."

"What for?" I asked snappishly.

"Just do as I say and shut up," said Duckworth.

Grudgingly I rolled up my sleeve and let him take a small sample of my life's juices.

"Now get out of here until you hear from me," said Duckworth.

"You're being ill-tempered and rude," I said. "You probably think you have a good reason, but I'll never forgive you."

I turned to leave and tripped over a Bunsen burner which had been carelessly left on the threshold. In avoiding a fall, I almost wrenched my back out of kilter.

"See what you've done," I gasped. "It'll be a week before this agony will subside. Give me a shot of Perceptron."

"Not on your life," said Duckworth and, very gently, he eased me into the hallway and shut his door.

FOR several weeks he would not answer my calls. His lab door was locked and he would not respond to my pounding. I knew that he was subject to strange caprices, but this one exceeded all of them. And then, once again, he reappeared at the computer lab.

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"I have nothing to say to you," I said huffily.

"That's great," said Duckworth. "Then maybe you'll listen for a change. I've been doing a careful analysis of your blood sample."

I paled.

"What's wrong with me?"

He waved his hand reassuringly.

"It's all right," he said. "And it isn't. At least you're all right now."

"Was I sick?"

"In a way," he said thoughtfully. "You see, there were traces of a strange compound in your blood. It was amazingly like Perceptron except for a sulfur radical that had been tacked on. I think it's a response of the body to Perceptron. I've been trying some of the blood fraction on my cat."

"Did he froth at the mouth?"

"No, but his sense of time perception stretched out so long he almost starved to death."

"Stretched out?"

"Precisely," said Duckworth. "For every dose you take to speed you through some painful crisis, later on, at some unpredictable moment, the body's formation of anti-Perceptron will stretch out some time interval to an agonizingly long period."

I shuddered.

"What if it had come at some unpleasant time?"

"I couldn't have phrased it any better," said Duckworth.

"Then Perceptron is too tricky to use?"

"Much too risky," said Duckworth. "Suppose you'd been back in the dentist's chair when the anti-Perceptron formed?"

I shut my eyes.

"Please, Duckworth," I said. "Is there any more of that stuff in my blood? Maybe a leech is in order? Or some old-fashioned bleeding?"

"I don't think so," said Duckworth. "The rate of decay of anti-Perceptron is quite rapid."

I sat down and mopped my now swimmingly wet brow.

"You were right, Duckworth. I was trying to get something for nothing. I should have known it wouldn't work."

And then a sudden thought struck me. What if anti-Perceptron were used to prolong pleasurable interludes, like lovemaking for example.

"Duckworth," I said very tentatively.

The tiny eyes fixed upon me.

"I was thinking," I said. "It was just a novel idea that occurred to me."

Duckworth's eyes blazed.

"I know what you're thinking about," he said. "The very same thought occurred to me. And the answer is a violent *no*."

"Of course," said Duckworth. "Isn't that what life is all about?"

And, wreathed in homilies, we retreated to the Faculty Bar for some libation that would distort, but in moderation, our senses of true time perception. ✱

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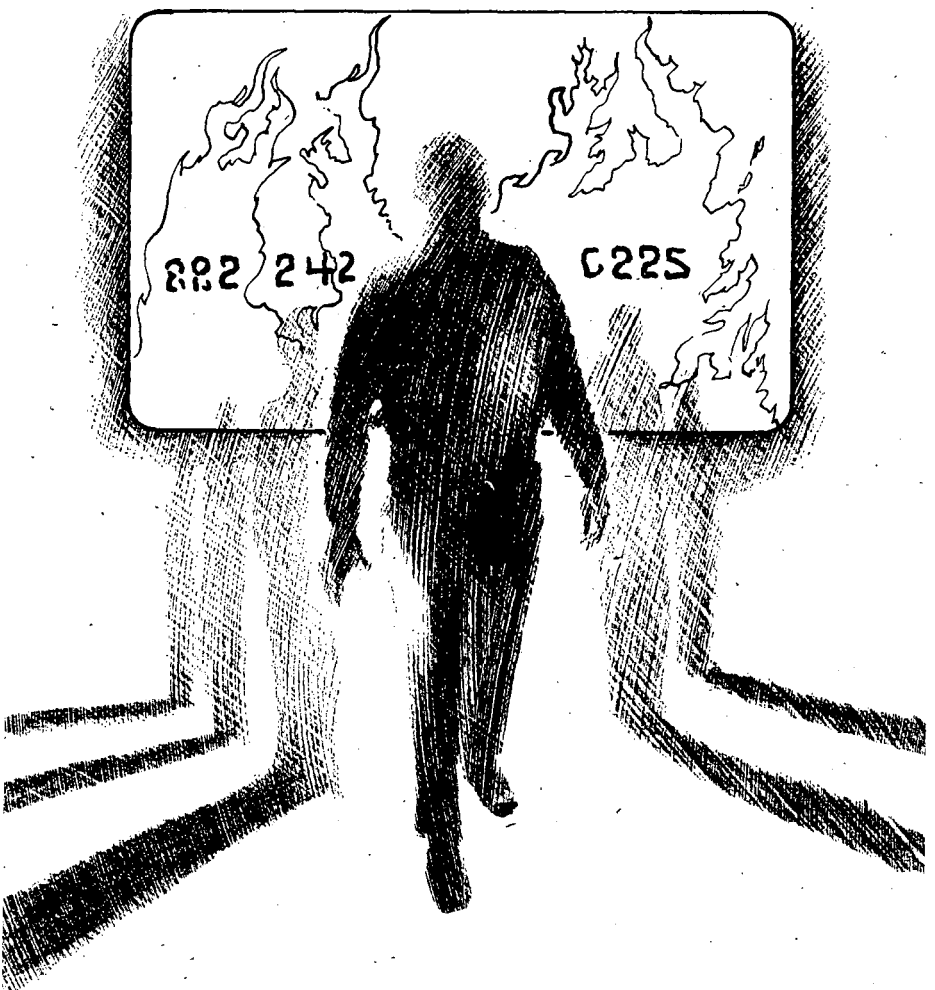
SUBSTANCE AND SHADOW



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What is the substance of a man's soul?

DORIS PISERCHIA

MADGE CARTER saw a reporter in the back of the courtroom take out his lighter to sneak a smoke. She tensed in the witness chair and her eyes devoured the bloom of tiny flame.

"This is only an inquest, Mrs. Carter," said Paul Reed, recapturing her attention. "I hope you aren't upset."

Madge shook her head.

"Will you please tell us about last Saturday?"

"But I already have."

"And we're no closer to finding out what happened to Mr. Draper."

"As I said before, my husband and I and Mr. Draper were in the laboratory. At one o'clock, Gil and Mr. Draper finished dismantling the punch-card machine and began discussing the next project. As far as I know, there was no one else in the building except for the cleaning woman, Mrs. Wells, who was in the adjoining room. At approximately twenty minutes after one, I opened my handbag to look for something. A few moments later I looked around and Jeff Draper wasn't there. Gil was working at his desk. We went to Mrs. Wells and asked her where Jeff had gone. She said he hadn't come out of the lab."

"And that door was the only exit?" said Reed.

"Yes."

"There doesn't happen to be a carnivorous machine in your lab?"

"That isn't funny!" said Gil Carter. He sat in the first row of observers. The judge tapped his gavel.

Reed slowly walked around the witness chair where Madge was seated. "What about the machine that walked out of your laboratory and went after . . . what was the bank robber's name?"

Stifling a sigh, Madge said, "We dismantled it."

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"What about the machine that wanted every newborn with criminal potential to be destroyed? I understand it insisted this must be done to save the world."

"It was dismantled."

"There were other machines, weren't there?"

"What if there were?" said Madge. "Do you think one of them was responsible for Jeff's disappearance?"

Reed showed the courtroom his smile. "Not for an instant."

"It sounds as if you believe my husband and I use our laboratory as a place in which to tinker."

"Not at all. You're the leading electronics experts in the country. On the other hand, my task is to bring to light any information concerning Jeff Draper's disappearance."

"I wish you luck," said Madge. "He was a good man. His assistance on the punch-card project was a brilliant piece of work. Of course the project was a failure. Too expensive."

Reed eyed her keenly. "It's generous of you to give him such recognition."

"Gil and I admired his ability."

"Nobody has accused you or your husband of anything, but we all know Draper is gone."

"I don't know how or why," Madge said in a low voice.

"Corpus delicti," Reed murmured. "Where is his body?" The lawyer held out his hand. An earring lay there. "This is the only thing unaccounted for in Draper's apartment. We haven't been able to trace it to the owner." Reed looked at the witness. "That's all, Mrs. Carter. You may step down."

The inquest drew to a close and it was declared that without evidence there was no case. Jeff Draper was gone. The matter would go down on the books as an unsolved mystery.

THAT afternoon Madge stood before the open fireplace in the living room of her home. Her stance was rigid as she stared into the flames.

"Bitch," said Gil behind her.

"They can't trace the earring to me!"

"That isn't what I meant."

Her face twisting in a painful smile, Madge dropped a bit of paper in the fire. "It wasn't what you think."

"What do I think?" Gil sounded calmer now, but he was pacing back and forth.

"He promised to help me. He said he knew a good doctor."

"Not that again!"

"It's getting worse," she whispered.

"Why don't you carry a bucket of hot coals around with you? Then you can set your fires on the spot."

She turned to him with an expression of despair. "You don't understand. You don't care."

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"I understand enough. All you need is self-control."

"I need a doctor."

"A week ago you would never have admitted that."

Madge reached to take a notebook from the mantle.

"Put that down!" he snapped.

"You see?" she said. "It happens even when I don't think about it."

Gil started to walk away from her but suddenly he turned. "The inquest may be over, but what would the police think if they found you had been in Jeff's apartment?"

"What people normally think of such a thing. They'd have a motive for your hating him." She gave a little laugh. "How wrong they would be. It wouldn't have mattered to you if he'd been my lover."

Once again he paced. "None of this would have happened if you hadn't been playing firebug in the lab Saturday instead of paying attention. You might have seen what became of him. Of all the insane—right there in the lab! Couldn't you wait to get home?"

"I'll do anything for you, anything you say, only let me be treated."

"My wife isn't going to a psychiatrist. Never mind that. What were you burning on the bench Saturday?"

"What difference does it make?"

"Tell me!"

"Bits of paper," she said wearily. "I didn't damage the bench. There was an ashtray."

"What else besides paper?"

"That's all, I swear."

He seemed implacable and untouched by the plea in her eyes. "Why are you so upset about it? What did you do? It had something to do with Jeff. Damn you, I want an answer!"

Her eyes were prisoners that darted around the room. "His replication card."

Puzzlement erased the anger on his face. "What do you mean?"

"The punch-card we made on him—the machine you dismantled Saturday."

Angry again, he said, "What did that have to do with anything?"

"I don't know. He hid the card. He said it was his image and that he didn't want it destroyed. I think he was on the verge of a breakdown. He told me that when he sat in the machine and let it copy one of his cells it took too much."

"Go on."

She shrugged. "He was afraid of the card. He didn't like looking at it. He said it was his self, that we had superimposed the shadow upon the substance and that reality couldn't know the difference. Oh, I don't know what he said. I only know he was afraid of the card and that he was glad the machine was being taken apart. He said it would be a monster loosed upon the world, that nobody should copy his soul on a plastic card. My God, why are you asking me this? What does it matter?"

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"It makes no sense!"

"It did to him. All he talked about was substance and shadow. He said a copy could be as real as an original if it captured essence, that even if people couldn't steal essence, the replicating machine could because it operated on the same principle as nature. It worked with potential and added to it by using whatever was available."

"Keep talking," said Gil.

"The machine copied one of his cells. He said they were embryonic replicas of himself, which meant the machine was actually copying him. But the card wasn't an accurate replica unless his essence or true substance or inward realness was included. He said the machine took his soul and after the original had its realness stolen the original became the copy. Could that have happened, Gil?"

"He couldn't have believed that nonsense."

"MAYBE he did. He began doing weird things, like standing under lights and looking behind him or staring over his shoulder when he was out in the sun."

Gil stared at her with a startled expression. "Why did he do that?"

"He couldn't find his shadow."

Gil looked at the flames in the fireplace, looked at the shadow of his wife lying on the hearth. He walked toward her until the light of the flames bathed him. As he walked, he watched over his shoulder.

"Where did he hide the card?" he said, coming to a halt.

"In the dahlia pot by the window in the lab."

Their eyes met and his were frightened. "You didn't burn it?"

"I don't see that it matters. I could find a needle in a haystack. I loved the way it burned and sizzled and melted. But it screamed—and that's why I think I'm going out of my mind."

He backed away, almost lost his balance, caught hold of a chair. "It's impossible. I don't believe it."

Madge turned and stared into the fire.

"A monster?" said Gil. "We made a monster?"

"Isn't everything?"

"There's a card of me. Where the hell did I put it? Damn it—let me think—"

Madge raised her head. She was aware that he had left the room and was hurrying up the stairs. Sighing, she leaned toward the fire. The heat reached out ot her and warmed her frozen spirit. Cold from infinity drifted in through the crevices in the house. The cold had no shape or form, but it had power. It could seek her out and annihilate her, turn her to a pillar of ice. Her only defense against death was warmth. Blindly she sought salvation. Her hand went into her pocket and withdrew the plastic card.

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She held it out to the fire. They had made two cards, one for Jeff and one for Gil, and then they had taken the machine apart. It was regrettable because the theory behind the punch-card was good. A person entering the labor market for the first time had to fill out a dozen questionnaires. Even then he was a gamble to an employer. The punch-card machine would have eliminated the gamble. It copied a body cell in a matter of minutes and the card it produced was an infallible character reference. Each perforation was a physiological or personality trait. With an auxiliary machine to interpret the perforations an employer could know exactly what kind of person he was dealing with. Chemistry couldn't lie. Psychotics, thieves, liars or degenerates gave themselves away by their deficiencies or excesses of certain acids and hormones. The punch-card project could have been a major breakthrough in the understanding of human behavior. The card was the most detailed identification an individual could have. Without it, he was an unknown, a stranger, half a quantity.

Madge winced. How could a card carry a man's reflection on it? Everything about him, nothing left out. Nothing and everything. Were they one and the same? What kind of universe was it when everything and nothing were identical?

Her cold fingers opened and released the card. Gil would be angry. He was upstairs hunting for it. Why did he care all of a sudden? What did it matter?

The flames took the plastic rectangle, lapped at its fringes, leaped all around it, melted it, consumed it. A tiny scream burst from the fire.

She waited for him to come down and torment her. He didn't come, though she waited and waited. Finally she sent Craddock upstairs.

The butler couldn't find Gil. Incredibly her husband seemed not to be in the house. But he must be here. He couldn't have gone out without coming down the stairs and Madge would have seen him.

It was bewildering. She didn't evade the thought that she really didn't care. Her personal problems had a way of obscuring other issues.

"What do you think of all this?" she asked Craddock.

"It's a mystery, madam."

"Do you like mysteries?"

The butler shrugged.

"He's gone, like Jeff," said Madge. "Disappeared."

"Yes, I think so."

"The police will come."

"Regrettably."

"What do you think of me, Craddock?"

"I have a great fondness for you madam. I'll be happy to inform the police that Mr. Carter left the house at four o'clock."

"You're a comforting person. Do you know a good psychiatrist?" ✱

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GALAXY BOOKSHELF

Theodore Sturgeon

I'M GOING to talk about only two writers this month in any depth, and then fling myself into what I can only call "housecleaning." I have a backlog of literally hundreds of books on which I've never had time or space to report, and short of dumping the lot at the recycling center, there's no other recourse but to list them with totally unjust one- or two-word comments. I shall continue this practice month after month until I can get through my office without sidling; until my desk emerges from the mountain; until, perhaps, my *To Be Answered* file reappears, and I can begin answering my mail.

CARL SAGAN began to swim importantly into my consciousness only a little while before that fortunate moment when I met him personally. Without hesitation I place him among the five first-class minds I have ever encountered. It is impossible to refrain from Sagan anecdotes. It is difficult indeed to restrain oneself from them, for this man is fated to gather legends about himself, on the way to becoming one. Tall, articulate, with a resonant voice and dark but luminous eyes; astronomer, mathemetician, with a vast working knowledge of chemistry, biochemistry, physics and the complexities of computer technology, he is a great deal younger than he ought to be and looks even younger than that. He talks well and straight to the point, and he listens as much as he talks, and does it with attention so total that you can't just blurt; you find yourself testing and checking what it is you're saying to him: is it so, is it sensible, do your words say what you mean. His do.

Item: At a symposium Fred Pohl read a paper, and afterward Sagan came to him and corrected some figures Fred had used. Now Fred Pohl is a bright and careful man who does his homework, and has instant and total retrieval, and said flatly, "I got those figures from Dr. so-and-so of the Such-and-such In-

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stitute." "Oh, I know," said Sagan, with (and you've got to believe this) not one split iota of brag, "he got those figures from me, but he didn't understand them."

Item: In the preparation of a long and heavy series for Westinghouse Radio, my wife interviewed Sagan, and presented him with a four paragraph question dealing with 1) the ecological mess 2) overpopulation 3) The Bomb and 4) human cussedness generally: "In view of these things, Dr. Sagan, can man survive?" Sagan: "Search me."

Item: On walking into the waiting room at LaGuardia with Sagan and our wives, I was startled to see someone scurrying to unlock the V.I.P. lounge for the four of us, something one has to get used to in the presence of this remarkable human being. I should have said "five of us"; my then 2-year-old Andros was on his usual perch on my shoulders. Due purely to an inexcusable lapse on my part, Andros cut his forehead open on a glass coffee table. There followed a nightmarish sequence of getting him to a local emergency hospital. Sagan came with me while his lovely (and very talented) wife Linda stayed with Wina. At the admitting desk, with bloody Andros back again on my shoulders while we stood there getting forms filled out, Sagan was right there, right on top of every detail; he couldn't have been more concerned if it were his kid, or for that matter, his head. How together I was I'll never know; with him there, there was no chance to fumble. We cased the waiting room then, waiting; we paced a corridor or two. People were in the corridors, lying on gurneys, waiting too, waiting with that numb patience you might see on a mule tied up to the hitching rail outside a barroom. A Puerto Rican came up to us to ask about the doctors here, because he had a pain here, and he couldn't sleep, and . . . Sagan spoke to him gently and simply and encouraged him; then they called me and I took Andros in to get him stitched up. Sagan waited and got us a cab. On the way back to the airport he was very silent, deeply reached by that whole hospital scene, slowly pulling himself out of it. Suddenly he smiled and said, "Did you notice that girl at the registration desk?" "Notice what?" "She took one look at Andros, sitting on your shoulders with his head all bloody, and then she put one hand up to her own head and kept it there the whole time she was talking to us, and she never looked up again."

Now that, friends and colleagues, is the very achetype of what I call the "writer's eye." Some are born with it and some develop it, but no really good writer ever lacked it. It's a way of scanning and recording those intensely human fragments to which a reader responds fully and immediately—those which the rest of us miss completely, as did I.

Not that you need this, or me, to

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demonstrate that the man is a writer. Try *The Cosmic Connection, An Extraterrestrial Perspective,* (Doubleday $7.95. Illustrated and indexed, 274pp.) It was produced by Jerome Agel (who did the same chore for McCluhan's *The Medium is the Message,* Buckminster Fuller's *I Seem to be a Verb,* and *The Making of Kubrick's 2001*) and has, among its many photographs, some exquisite and meticulous drawings by Jon Lomberg. On the back cover is a rendering of the "Message to the Stars"—the gold anodized aluminum plaque carried out into deep space by Pioneer 10. Inside the book is the story of that plaque, how Sagan and his colleague at Cornell, Dr. Frank Drake, designed the "message," how Linda Sagan did the art, how conception, execution, and progress through the hierachy at NASA was accomplished in a bare three weeks, and even how some nameless, faceless bureaucrat parted the Earthman's Afro and made a white man of him. You'll read about the 85-page letter in green ballpoint which even Sagan could not answer, and about his astonishing adventures in communication with dolphins and with first-graders, and a flabbergasting exercise in *non*-communication with the CIA. And among these expressions and inadvertant self-portraits of a genuinely fine, warm human being is the heavy stuff—lucid, exciting, inspiring sometimes, and always igniting the sense of wonder: black holes, calculations on the degrees of cultural evolution and on the duration of a civilization, meticulous you-are-there descriptions of landfall on Venus, on Mars; a guided tour among the bureaucracies, surely the strangest excursion into alien intelligences of all. And this:

> There will be a time in our future history when the Solar System will be explored and inhabited. To them, and to all who come after us, the present will be a pivotal instant in the history of mankind. There are not many generations given an opportunity as historically significant as this one. The opportunity is ours, if we but grasp it. To paraphrase K.E. Tsiolkovsky, the founder of astronautics: the Earth is the cradle of mankind, but one cannot live in the cradle forever.

—just in case you were beginning to feel bored or cynical about the times you are living in. . . . And then there's Linda Sagan's six-legged unicorn, with old Sol just under his tail . . .

Communication with Extraterrestrial Intelligence CETI. (edited by Carl Sagan, illustrated and indexed, with appendices, 418 pp, $10.00, M.I.T. Press) is the transcript of an extraordinary meeting in September, 1971, in Soviet Armenia. CETI is several things: an acronym for all those words in the title, the Latin genitive for "whale,"

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as an acknowledgment to the presence on Earth of non-human intelligence, and a recognition that one of the two stars "listened to" by Frank Drake for Project Ozma was Tau Ceti; and finally, a short handle for the conference itself. Participants came from the U.S. and the U.S.S.R., the U.K., Canada, Hungary and Czechoslovakia, and they were real heavyweights: M.I.T.'s Minsky, who is building toward a machine that can think, Ozma's and Cornell's Frank Drake, Charles Townes, who invented the maser and the laser and got the Nobel Prize, Francis Crick, co-discoverer of DNA's double helix and another Nobel Laureate; Freeman Dyson, mathematician and physicist whose paper in the Appendix is, by the way, one of the most beautiful things I have ever read; Soviet scientists of equal merit, but oh, I'm running out of space. The interchange between these amazing minds is worth ten days without lunch any time; buy this and keep it.

I DON'T think I can review Barry Malzberg's books as fast as he writes them. Not only do they cascade all over my desk, but there he is in anthology after anthology, and he has not completely abandoned the magazines. I have expressed before in these pages how impressed I am with this man. I do not see how anyone can stay so angry; there is no one, with the possible exception of Philip K. Dick, whose works, each one of them, are so unpredictable nor so outrageous and outraged. For *Beyond Apollo* he won the first John Campbell Memorial Award—it's out now in paperback (Pocket Books, 95¢) and his new one, different as it can be, is of equal uncomfortable merit. It's called *The Destruction of the Temple* (Pocket Books, 95¢) and deals disturbingly with the emotional impact of the Kennedy assassinations, together with those of Malcolm X and Martin Luther King. The impacts of these terrible events are not linear as in history, but cyclic, as they are in our minds and hearts; great events occur in these areas over and over, sometimes differently, with greater or less emphasis and power, and it is this that Malzberg's strange book exemplifies. Then there's *Tactics of Conquest* (Pyramid, 95¢)—ugly! ugly!, yet compelling, even demanding. It's chess this time, as his *Overlay* was horse-racing. One needn't know the game to read the book; however, love for the game enhances the novel. What a strange work! It's a man's struggle with himself, or selves, it's arrogance undefeated in horrible humility; it's important to the exact degree to which you are equipped to participate. Hate it you might; forget it you will not. Whatever. . . Malzberg will be around to perplex and infuriate long after most of the rest of us are homogenized in memory. Dammit! How can a man be so much fun and have so little joy? ✱

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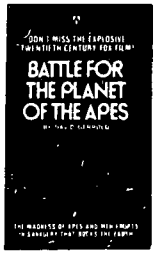

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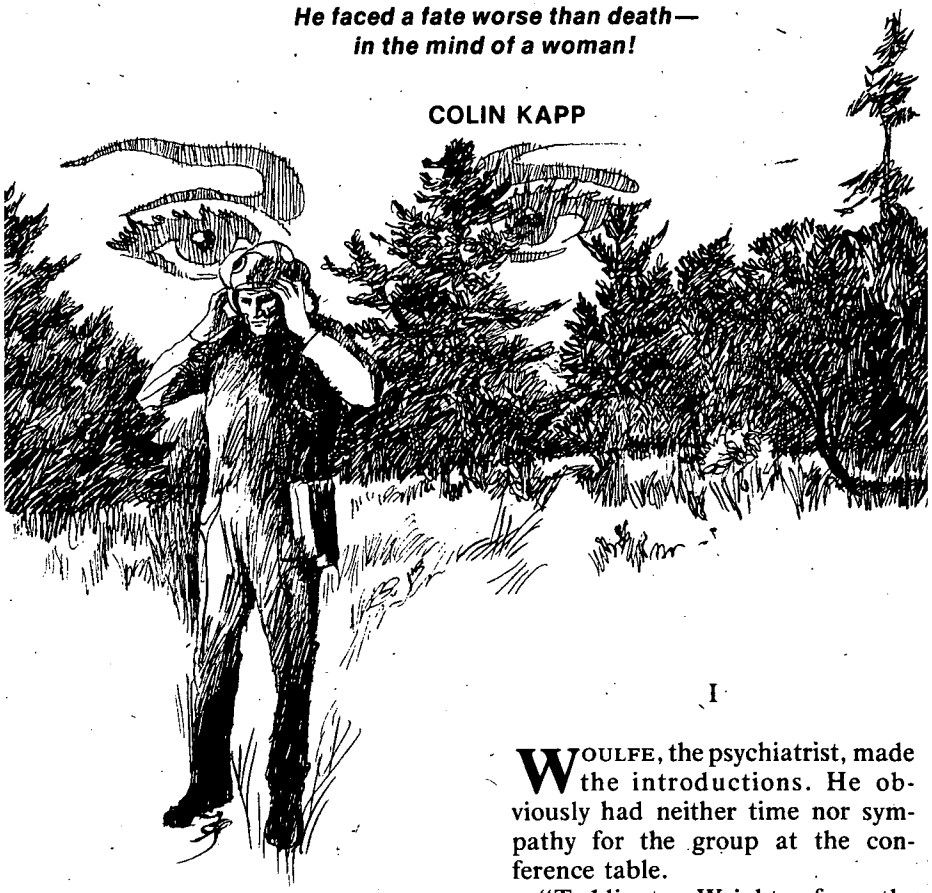
WAR OF THE WASTELIFE

He faced a fate worse than death—
in the mind of a woman!

COLIN KAPP



I

WOULFE, the psychiatrist, made the introductions. He obviously had neither time nor sympathy for the group at the conference table.

"Teddington-Wright for the

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Foreign Office; Commander Jacks, Ministry of Security; Colonel Hander who, I believe, represents American C.I.A.—and another gentleman who doesn't have a name. His organization is so secret even he doesn't know whom he's working for. Before we hear from him directly, gentlemen, allow me to introduce Doctor Martin Sawyer—about whom so many bitter words have been spoken and who is the prime object of this meeting."

No-name sat up and inspected Sawyer critically through a haze of cigar smoke.

"Hold it right there a minute, Woulfe. Before we're in too deep I'd like to know something about this guy Sawyer. Like whose man is he?"

"In view of your forgetfulness about your own employment your preoccupation with other people's is remarkable," said Woulfe. "Doctor Sawyer is owner and director of a specialist company called Laser Metrology."

"I don't mean the cover story. I mean which security organization picks up his tabs?"

"None do." One could almost sense a subdued glee in the way Woulfe was handling the proceedings.

"You mean he's a freelance?"

"I mean that Doctor Sawyer isn't even interested in how this meeting turns out. He's the original innocent bystander."

No-name considered

"Then how come he screwed up Cassius?"

"I thought we'd already established that," said Teddington-Wright soothingly. "Doctor Cass's indisposition resulted from a plot by several security organizations who were disturbed by the inhumanity of her interrogation methods. It so happened that Doctor Sawyer was the instrument they used."

"Shades of Mitrione!" said No-name from behind his cigar.

"Furthermore, the plot was designed to kill her. It failed only because nobody thought to advise Sawyer of what was going on," Wright continued.

"Son of a bitch!" said No-name. There was a hint of admiration in his voice. "You mean he uncorked her by accident?"

"It's just a knack," said Sawyer modestly. "You should see how much damage I can do when I'm really trying."

Colonel Hander, the C.I.A. man, turned to Sawyer with a surprising show of warmth.

"Why don't you take a seat, Doctor Sawyer?"

"Thanks—but having listened this far I wasn't thinking of staying."

"I don't think he trusts us," said No-name richly. "Can you imagine that?"

The others laughed, as though mutual mistrust between them were more appropriate than not.

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"I didn't say that," said Sawyer. "But I've a lawyer sitting in a car outside with a writ of *habeas corpus* all ready with my name on it. And if he should run into trouble—there's a second one up the road with a writ with the first guy's name on it."

"Joking apart," said Hander, "don't you think you're being too cautious?"

"I think not. The last time I became involved with you security types I was handed over to Doctor Cass for use in an experiment. That's not an experience I'm anxious to repeat."

"Let's come to the point," said No-name. "With Indochina flaring up again we can't afford to have Cassius out of action. We need her persuasion expertise. Her present predicament is not only costing us lives—it's costing us money."

"That is a pity," said Tedding-Wright with a non-inflection.

"I'm satisfied," said No-name, "that all of you were implicated in the plot that got Doctor Cass hospitalized. Now the pendulum's swung the other way. It's in all our interests to get her back into harness. This son of a bitch—"he indicated Sawyer without rancor—"is holding us for ransom. Let's get down to detail, find out his price and get the show back on the road."

"All right, Doctor Sawyer—what *is* your price?" asked the C.I.A. man.

"Price? I don't even have anything to sell."

"Do they make them that thick, or is it something you have to work on?" asked No-name.

"It's probably my fault," said Woulfe. "Nobody's yet put the problem to him."

"If it has to do with Doctor Cass—don't bother," said Sawyer. "I'm not interested. Not for any sort of price."

"Is he for real?" asked No-name.

"He's completely real," assured Woulfe. "He's probably the only one of us who is. Martin—" he turned to Sawyer—"the situation is this. After the last mind-jaunt with which you were associated, Cassius—that's to say, Doctor Andrea Cass—predictably suffered a severe mental breakdown. Her treatment in America hasn't been effective, which isn't surprising when you consider the methods by which the trauma was induced. She's opted to be brought back here for therapy."

"You won't treat her?" Sawyer asked.

Woulfe pursed his lips. "Unfortunately, as a physician I've to consider the Hippocratic oath. She's a sick person in need of treatment. I have that treatment—therefore I can't withhold it. I could only wish a similar morality bound those who employ her services."

"How does this concern me?"

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"It's a question of gaining access to Cassius's mind. As you know, the mental models any mind-jaunt explores are coded to make the model intelligible only to someone who can comprehend the symbolism. It would take me six months to understand her use of imagery. But we already know that you and she can read each other directly, or she wouldn't be in her present difficulty. It's been suggested that you do a jaunt into Cassius's mind to perform the necessary therapy."

Sawyer said, "What?" so loudly that No-name jumped and dropped his cigar. "You want me to do a mind-jaunt on Cassius?"

"I don't want—Cassius does," said Woulfe. "My own advice is that it would be a very foolish thing to try. Knowing what your reaction would be, I already took the liberty of refusing on your behalf."

"You're damned right I refuse. One contact with that bitch is enough for a lifetime. Sorry I've wasted your time."

"Hold a minute, Sawyer." No-name had risen to his feet and the look on his face was dangerous. "Specifically, what are your objections?"

"You need them spelled out? She's an expert on brainwashing and torture science. From what I can gather she's the most ingenious and singularly ruthless operator in the game. In my view such people shouldn't exist outside a nightmare."

"That's only your view," said No-name abruptly. "But it's for precisely those talents that we need her. I'm offering you five thousand pounds—tax free—to change your mind."

"Get lost."

"Twenty thousand—and that's my final offer."

"It isn't a question of money. Woulfe, I want out of here."

"Don't be in such a hurry, Doctor Sawyer." Commander Jacks of the M.O.S. entered the fight almost apologetically. "I've been researching your Laser Metrology outfit. Although you're retained by main contractors, most of their funding comes from government contracts. If you were security blacklisted you'd sink like a stone. If my sums are right you could finish with liabilities touching a quarter of a million pounds. How does that grab you?"

"That's blackmail."

"We prefer to call it diplomacy," said Teddington-Wright. "What's it to be, Sawyer? Twenty thousand pounds tax free, or bankruptcy?"

"I need time to think about it." Sawyer looked around wildly. "Sorry, Woulfe. I've had as much of this as I can take."

"NO NEED to apologize," said Woulfe, following him out of the room. "You merely confirmed what I'd already told them. But I didn't think they'd lean on you as hard as that."

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"They're desperate to get Cassius back. But the whole proposal amazes me. I was partly responsible for her condition in the first place. How come she's asking me for help?"

"I see two possibilities, Martin. One: you may have touched some empathic chord in Doctor Cass that makes you the one person she'll allow to trample around in her mind. Remember that in her profession there are more than the usual number of things one may not want exposed."

"And the second possibility?"

"Is that she may want you to enter her mind so she can punish you. Rationally or not, she still blames you for the circumstances that put her in my care."

"How ill is she?"

"I don't rate her as badly off as some seem to think—but there's no doubt she's seriously disturbed."

"May I see her?"

"I wouldn't advise it."

"Just for a minute?"

"If you insist. But it'll have to be under supervision. I wouldn't put it past her to attack you on sight. You've been considerably on her mind."

Slightly apprehensive, Sawyer followed Woulfe to a part of the Institute where all the doors were locked. At a particular door two armed servicemen stood guard. Their function was more obviously to stop intruders than to prevent the escape of the occupant. They insisted on accompanying Woulfe and Sawyer into the room.

The room itself was large and luxurious. It was as unlike a hospital room as any that Sawyer could have imagined. Rather, it resembled a drawing room of an aristocratic house. The broad, leaded windows looked out onto acres of well kept parkland and the antique perfection of the furnishings contained an inbuilt invitation torest and quietude.

Inside the room was Cassius—the infamous Dr. Andrea Cass—whose expertise in the techniques of persuasion had made her the most sought-after practitioner of mind-rape and torture science—and probably the most feared and hated woman in the world. At this moment she was standing pensively at the window looking lost and very frail and feminine. Despite her relative youth Sawyer thought the gray streaks in her hair were more marked than he remembered.

She turned as Sawyer entered and her smile of recognition was not without a trace of bitter humor.

"Martin! It's been a long time."

"Six months is all," Sawyer said carefully.

"That six months came directly out of my life." Her voice held reproach and she touched her face as she must have done a thousand times to reassure herself that the mirror was not lying. "I underestimated you, Martin. I won't make that mistake another time."

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"There won't be another time, Andrea. I don't go for the kind of games you play."

"Then you won't accept the challenge?" Something of the old, bright tiger had awakened behind the curtains of her eyes.

"What challenge?"

"To see what life is like in the world of Andrea Cass. Access to the life model of the bitch of the century."

"It's not my scene. I'll wait till it comes out as a paperback."

"Whom are you afraid of, Martin? Yourself or me?"

"A good question. I'm afraid both for and of myself. I don't give a damn about you."

"Yet you couldn't resist coming here." Her gaze was deep and penetrating. "Shall I tell you why? You had to see if the legend was still as formidable as you remembered. You couldn't resist the temptation of standing in the shadow of danger."

"You're right, Andrea. You *are* the bitch of the century."

"Perhaps of the millennium, Martin. Doesn't that intrigue you? Hell I can read you like a book. You've a masochistic love of trouble. You don't enjoy it, but you're hooked on it. That's why I know you're going to make this jaunt."

"No. It's the reason I'm not going to make the jaunt. Knowing you has raised things in me I never knew existed. Given half a chance I might be tempted to finish the job I loused up last time. This time around I might kill you."

"Good. Then it's settled. Half a chance is exactly what I'm offering."

"I haven't yet agreed to anything."

"Give me your hand, Martin." The bright tiger behind her eyes was restless and alive.

Unthinkingly he offered her his hand. She took it with fingers that were incredibly soft and cold. Then she moved more rapidly than his eyes could follow. He stood looking stupidly at the white weals across the veins of his wrist, just beginning to redden with beads of blood.

WOULFE's intercession was swift. In the corridor outside he looked at the damage and grinned wryly.

"We'd better get this dressed. All in all I think it's less than you deserved. I told you I didn't advise you to see her."

"You also advised me not to make the jaunt. I'm going to make it, though."

"I'll have you certified first."

"That's your privilege. I wouldn't respond to blackmail. But I'm a sucker for a challenge."

"That's what she's playing on. She's a clever woman. What she's asking me to set up isn't a therapy session—it's war. And I don't see you in the role of crusader."

"Look at it this way. Something

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must have made Cassius the way she is. Here's an opportunity to find out what."

"And when she eats you?"

"She'll try it anyway some day. I could see it in her eyes. If I'm going to have to face her I'd prefer to do it now rather than later."

Woulfe smiled ruefully and shook his head. "That's probably the only rational thing you've said so far. This could be the first case in medicine where the prognosis was worse for the therapist than for the patient. You can't have considered what you'd be getting into."

"Cassius's mind, would you believe?"

"Cassius's world is a better description. Take it from me it's a bitter, violent territory. It contains cruelties and extremes your soft upbringing has left you unequipped to face. Furthermore, it's a place where she makes the rules and where the possibilities are limited only by her imagination. You don't need me to remind you that mind-jaunt experiences can be every bit as painful as their real-life equivalents."

"That I accept. But with a little cooperation between us I can go in there with at least a fighting chance."

"You don't stand any sort of chance. Compared to the type of mind to which you've been exposed, Cassius is an alien mentality. Why take the risk?"

"Think about the lady for a moment, Woulfe. You've probably suffered from her even more than I. Should we aim to cure the superficial trauma that brought her here—and have her go back to practicing her atrocities? Or do we take this opportunity to penetrate to the depths of her personality? Suppose I could get to the root of what makes her the particular sort of bitch she is?"

Woulfe's eyes widened with speculation.

"She wouldn't let you penetrate that deeply."

"It must be very lonely to be Cassius. Who'd ever offer a sympathetic ear to *her* private hurts and grievances? And what could be more comforting than actually to be able to show the wounds rather than merely to tell about them?"

Woulfe's consideration ended in rejection.

"The idea's tempting. But it's too dangerous. It's naive to think that her penchant for cruelty was induced by circumstance. It's as likely to be innate. And that would leave you exactly where she wants you—as the object of a spiteful game."

"I'm going to be the object of that game some day. She's not going to let me get away—so at least let me meet her under conditions where I can yell for an out when the going gets rough. Under other circumstances I might not get the option."

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"Very well," Woulfe said finally. "I'll set it up. But I've the curious feeling she's manipulating both of us. Are you going to take their money?"

"Have it made payable to Amnesty International. I don't think the irony'll be lost on No-name."

II

"THE principle of the mind-jaunt is fairly simple," said Woulfe. "I wish I could say the same for the application. The on-line computer complex alone is probably the most powerful in the country."

No-name looked baffled. The size of the operation clearly amazed him.

"Without getting technical, Woulfe, explain to me how you manage to get one person into another."

"Fortunately we don't have to. In every person's brain there's a perceptual model—a model of the world as the individual sees it. The information's coded in the brain in a complex multi-access store. By finding another brain that uses a similar code we can explore the model as though it were a three-dimensional replica."

"Son of a bitch!" said No-name, rolling his eyes as if to look inside his own head. "So how do you get in? Through a hole?"

"Nothing half so inexpensive. We use a modified EEG technique. In the brain is an entity called the cognicenter. This is a spark of consciousness that inhabits the model just as the individual inhabits the world at large. The cognicenter is a phase phenomenon—the mutual intercept point of seven different biological rhythms. The presence of the cognicenter causes the model itself to give off discharges we can reconstitute electronically to reproduce the original mind scene."

"Hold it a minute, Woulfe. That's all gobbledygook to me. The cognicenter sounds like a subversive organization that needs investigation by a Senate committee."

It was Woulfe's turn to raise his eyes to the ceiling. He ignored the interruption.

"In mind-jaunt therapy we don't use the natural cognicenter at all. We create an artificial cognicenter by a pulse stimulation technique and track this through the model in response to the activities of our viewer equipped with a jaunt suit. While he actually walks in the jaunt theater or out on the field, his experiences are those of being present in the model."

"And that's how Sawyer's going to get into Doctor Cass's mind?"

"She and Martin operate on the same wavelength, so to speak. He'll take a jaunt into her mind and attempt to get to the location of the trauma that is causing her present distress. When he gets there he'll have to repair the mind-wound

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under my direction."

"And there's no chance it'll hurt her?"

"It's not her I'm worried about. In order to make the access possible we have to present the full spectrum of sensations derived from the model: sight, sound, smell, touch, pain—the lot. Effectively, while Sawyer's in Cass's mind he's an inhabitant of her inner world. Remembering what Doctor Cass stands for and the fact that she's developed a deep-seated grudge against Sawyer, it's quite likely she'll trade the therapeutic benefits for the chance of revenge."

"Baloney."

"Is it, Mr. No-name? You're a man with a free-ranging mind. It could be that you're on Cass's wavelength too. How'd you like to make Sawyer's jaunt? How'd *you* like to be exposed to Cass's imagination?"

No-name stopped and searched his pockets for another cigar. He found one. As he lit it his eyes became fixed on the small, sharp gas-flame from the lighter. His hand began to tremble violently.

"Son of a bitch!" he said fervently and, with a strained expression on his face, went straight back to his car.

WOULFE turned back to Sawyer. "You haven't yet seen our new mind-jaunt facility, have you, Martin? A bit of an improvement on the abandoned airstrip where we started. We've a small, covered jaunt theater for training and detail work and a two-mile square open course for major exploratory work. Most of the electronics is now plumbed in, so we've been able to bring the weight of the jaunt suits down a bit. We're sticking to radio links, however, because of the mobility they allow."

"If I yell for out, just how long d'you reckon it'll take to get me clear?"

"There's a snag here. The increased power of the new equipment forces us to be careful with the disconnection sequence. If we're not you'll get a sensory overload that could knock you silly for days. We need a rundown time of about three minutes. Whatever you get into, give us at least that much notice."

"It doesn't qualify as an emergency escape system."

"All the more need for you to be careful. I don't know what Cass has up her sleeve, but I suspect she's bribed one of the lab staff to brief her on operating procedure. She could know as much about the technical limitations as we do. So don't cut your margins too fine."

"She could do a lot of damage in three minutes. What I really need is an instant exit."

"I've been thinking about that," said Woulfe. "The best I can offer is a jump facility. This momentarily upsets the phases of the generators controlling the cognicenter point in the model. It produces an instan-

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taneous shift to another part of the model. Where you jump to is arbitrary—and it won't take her very long to find you. But it could buy some valuable time if she's putting on the pressure."

They came now to the mind-jaunt theater. A trainee doctor was going through a simulated run in the jaunt suit. Strapped on the harness around his body were the sensors that defined his position in the theater, the transmitters that passed this information on to the computers, and the receivers that relayed the mind-jaunt information back to the equipment in the helmet. As he moved around the theater the sights and sounds and impressions he was receiving from the helmet corresponded step for step with his apparent progress through the model.

Sawyer closed his eyes and steadied himself. A dry run through the limitations of a computer simulation was one thing—a jaunt through the mind-wrenching and possibly painful realities of a living model was a thing different not only in degree but in kind. No computer model could reproduce the twists and subtleties, the sensations of presence and the dreadful interlock of personalities an actual mind-jaunt involved.

The mind-jaunt helmet itself had evolved a lot since the last time he had worn one. It was lighter now, less cumbersome, and the headstraps had been replaced by Velcro strips. Unfortunately, for the sake of stability, a bearing yoke on the shoulders had padded bands that passed beneath the armpits—sound engineering, but a potential death trap to somebody who might need to get out of the helmet urgently and regardless of the disconnection risk.

"What do you think?" asked Woulfe.

"I'm of two minds. Part of me says the value of the game isn't commensurate with the risk. The other part asks why the hell I'm worried. After all, Cass is only a woman."

"Which notion could easily get you killed, Martin. Start thinking of her as only a woman and you're dead. Better think in terms of having to sup with the devil and sharing the same spoon."

"Assuming for a moment that I manage to reach the seat of the trauma—what's the procedure from there?"

"You know what caused the condition, because you were an eyewitness. Under hypnosis I shall attempt to take her back to that point. If we can establish a replay all that's necessary is for you to arrange a different ending."

"Thinking about it," said Sawyer, "I'm not too convinced it's necessary for me to go there at all. After all, her mind built the model. Why can't it effect its own repairs?"

"To a slight extent it does. We all at times go through our models

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chipping off sharp corners to try to salve injured pride and prove we're not as incompetent and insignificant as reality suggests. It's a process known as rationalization. But such repairs are largely superficial. The cognicenter needs outside reinforcement if it's to do a decent job. Otherwise the cracks remain."

"Is that what Cassius has done? Papered over the cracks in her mind with rationalization?"

"I think her American doctors failed to appreciate that a mind-jaunt experience is at least equivalent to an actual experience. Cassius's trauma resulted from a certainty that rats were eating her face—you were a witness. The Americans chose to regard the rats as the product of suggestion. But in her circumstances the rats were as real as any rats you'll ever encounter. I propose you stage a gallant rescue attempt—which will give her the opportunity to restructure the model without the lesion."

"You've made my day!" said Sawyer. "That was all I needed—to be appointed official ratcatcher to the bitch of the century. Do I get a choice of weapons? If so, I'd like a flame-thrower. By the time I'm through, Cassius will really have something to be neurotic about."

Woulfe pursed his lips. "I appreciate the sentiment, Martin, but this is supposed to be a therapy session. The politics behind the situation are such that if any further harm comes to Cassius research into mind-jaunt will be written off for good. Which would be a pity. Mind-jaunt's the first approach to mental health that ever looked like becoming an exact science."

III

CASSIUS herself seemed unconcerned. In the small, copper-screened annex adjacent to the computer room she lay composedly on an operating table while electrodes were taped to her scalp. Her response to Sawyer was a curious half-reproachful look, which concealed a hint of triumph. Sawyer found this more daunting than a display of overt hostility. He feared suddenly that her tactics might be more subtle than the range of his available defenses.

Then the technicians turned their attention to him. Once a provisional route through Cassius's mind had been established it was planned that the therapeutic detail would be worked up in the covered jaunt theater. For the moment, however, Sawyer must work in the open on the two-mile field. The overcast sky threatened rain and presented no encouraging omen. Rather, it reflected his predominant mood now that the bravado had flown and the ordeal was about to begin.

With the technicians were six students, eager and anxious to assist and appearing faintly envious

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of his position. Remembering his own raw introduction to mind-jaunt, he thought their enthusiasm misplaced. To him the worlds encountered under the helmet were places of violence, fear and madness. The demands upon one's understanding and personality were ferocious and absolute. He doubted if any of the bright youths around him would really have cared to take his place had they known the truth about the world he was going into. Despite Woulfe's patient instruction, no lectures could prepare a man for the actual experience. In the final analysis the only factor that would count was a grim determination to survive.

When the electrodes had been placed in contact with his scalp and the yoke and harness had been fitted the helmet was placed over his head. His immediate reaction was a claustrophobic fear. The headphones were silent and the picture tubes were dark. Though he stood in the midst of his team, he was effectively isolated from them. He could feel fingers working on the straps and harness and the gradual addition of weight as the equipment packs were added, but these were now alien sensations. His reality was a silent, total darkness, a multi-dimensional blank slate on which a new and unfamiliar world was soon to be inscribed.

Perhaps equally with Cassius's antagonism, this new world itself was to be feared—in it the strong-man's slope could become the cripple's hill.

It was a question of adjustment. His own cognicenter moved within its comfortingly familiar model which he had laid down over a lifetime. Cassius's background was a mystery. Yet now his senses were to enter her model, where even the basic precepts would seem alien and strange. He would have to grasp new concepts, interpret them and be able to handle himself within a new frame of reference. Such mental gymnastics were daunting enough when the model being entered was neutral. When the model was antagonistic—especially the spiteful, frightful antagonism of Cassius—the prospect was sufficiently ominous to make him break out in a cold sweat.

Woulfe would attempt to monitor his progress throughout the jaunt, but the monitors would reflect little of the immediacy or the involvement that were a feature of the jaunt itself. Further, while every step of the way he would be accompanied by his group of assistants on the field, once he achieved breakthrough he would be subjectively very much on his own. Only the snug feel of the bulb of Woulfe's emergency jump button strapped against his palm offered any sort of comfort.

THE induction period was signalled by a staccato rushing noise in the headphones and a spectral

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fireworks display on the picture tubes built into the helmet. The induction time was unusually long. Apparently Cassius's brain was resisting the insertion of a foreign cognicenter. Several times the images nearly gelled only to be rejected back into a formless chaos. Even under Woulfe's mind-relaxing drugs her brain still presented a nearly impenetrable barrier to the mind-probe pulses, refusing to fall into syntonic harmony.

Then came breakthrough. With a breathless quieting of the mush which had filled his senses, the scene suddenly crystallized and hardened. His first second of exposure left him shocked and amazed and fervently wishing he had not volunteered. He found himself standing in a garden, but this fact was secondary to the welter of impressions that assailed him. The clarity and fidelity of the scene was a study in sensory agony. He had not realized how dull and blunted his own senses had become until this instant when they had been bypassed and he had been fed the full-pitch version of the world as Cassius knew it.

The incredible resolution of her vision was matched by a heightening of tactile sensation, hearing, taste and smell. It was as though he had lived all his life in a thick shell that had suddenly been sloughed away. His brain was unused to receiving the product of such naked sensitivity. It hurt.

"Breakthrough?" Woulfe asked out of nowhere.

"And how! You sure the damn thing's adjusted right? Nobody could live at this pitch of sensitivity."

"Cassius does," said Woulfe unfeelingly. "I warned you hers was almost an alien mentality. She has a sensory hyperacuity that places her constantly closer to the threshold level. This perhaps explains her preoccupation with pain in other people."

"Can't you turn it down?" Sawyer asked.

"No. The information's not coded in analogue form. It would be a major computing exercise to attenuate it. In any case you're going to need to be keyed to the same pitch if you're to match her on her own ground."

Sawyer shrugged resignedly and turned his attention back to his surroundings. Despite the improvement in equipment there was still a slight delay between his making a movement and the computer's detecting it and matching it with an adjustment of the position of the artificial cognicenter in Cassius's model. It was something to which he would quickly adjust and it was the only factor that detracted from his perfect sense of being present in the model.

The first thing he noticed was that he was barefoot. Although he knew that in reality his feet were firmly encased in shoes, in

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Cassius's model he could feel every individual blade of grass soft under his feet, and a pearling of dew that created a chill that was barely tolerable. The feeling was sensual and slightly illicit—a forbidden pleasure.

RISING on a hill above a river, the superb lawn on which he was standing formed a long, artistic crescent set at its narrowed top with rock arrangements hedged with bright flowers. It took him a few moments of wandering over the dew-soaked grass to realize that the lawn was actually shaped like a huge, broad-bladed scimitar, with the rocks and flowerbeds expertly interwoven to stimulate its jewel-encrusted hilt. The convex edge of the blade had incursions of crimson flowers representing life-blood still dripping from the edge. Thus a scene of great beauty was tainted by the morbid whim of a master gardener. There was something faintly insane and alien about the precise care that had been taken to produce so wry and bloodthirsty a joke.

Sawyer started violently. Having thought himself alone, he was disturbed to find Cassius so close to him without warning. Instinctively he stepped back to put a prudent distance between them.

His nervousness made her laugh.

"A short truce, Martin. I want you to understand what you've got yourself into."

"I think you called it the mind-scene of the greatest bitch of the century."

"That was an understatement. The truth goes deeper."

Sawyer watched her curiously. He knew that in reality all that he was seeing was Cassius's cognicenter—the point of heightened activity in the brain that caused the cells of the model to discharge, thus creating the condition of awareness. The mind, however, usually vested the cognicenter in an idealized impression of the person's own outward appearance, thus giving critical life to a psychological abstract.

The Cassius before him was different from the one he had known. She was younger, perhaps still in her late teens, and her dark hair was long and untroubled by streaks of gray. She was clad in a garment of white folded silk and her dress and manner made him notice for the first time a faintly oriental quality in her face.

"How old is this memory, Andrea?"

"We're back ten years or so. There's something I particularly want to show you here."

"Is it relevant to the therapy?" he asked.

"No. But it's relevant to what shaped a bitch like Andrea Cass."

She held out her hand. Sawyer pointedly ignored it. He was still looking at the long sweep of the scimitar lawn and trying to fathom

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the twisted mentality behind it. She followed his gaze.

"My ancestors laid that lawn a thousand years ago. Its location was carefully chosen. From the house at sunset you can actually see the blood draining from the blade into the river."

"What house?"

"Up there on the hill. The House of Tsi. The place where I was born."

"I thought you were European. This isn't Europe."

"No, we're in Asia now. Exactly where doesn't matter. My mother was American. My father was Tsi—and the Tsi admit no national allegiance. They have an unbroken tradition of their own going back a thousand years. It's no ordinary family. Come! It's important you understand."

Because of the incredible fidelity of the scene, it was easy for Sawyer to forget that both he and she were only cognicenters in the halls of Cassius's mind. He followed her up a path of little steps that twisted and turned invitingly as they climbed the hill. His impression of her was probably her own idealized picture of herself as she had been at that age. Even allowing for some enhancement of the image, she must have been a creature of rare attraction. She moved with a lithe effortlessness, disconcertingly feline. He found a curious fascination in noting how exquisitely controlled was her every movement.

His own clumsy ascent caused him to feel more acutely the sharpness of the climb. He was glad when they reached the level bowl in the hillside in which the house was set. Here they encountered numerous transients—fleeting images of the hundreds of people and events occupying the model at this time-depth, yet whose relevance was insufficient to ensure a permanent place in the mind-scene. If he concentrated carefully, he could follow them individually: a herdsman cursing recalcitrant goats; horsemen barebacked on wild mounts thundering down into the valley; a cart piled past the point of equilibrium, slowly tipping in a rut—idle snapshots of life that had caused a moment of attention and had then fallen into the limbo between remembrance and forgetfulness. As soon as he ceased to watch them deliberately they dissolved to less than shadows.

Some inhabitants of the model were more than transients, however. These were the expected occupants of the scene. When it encountered them a cognicenter could elicit a typical response, although the dialogue could not be sustained unless reinforced by suggestion or external perception. Thus two large dogs stood rigid before the gates, actually able to see and sense the arrival of the cognicenters, which were Cassius and himself. Cassius stopped between the dogs and spoke to them. The dogs greeted

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Cassius eagerly, then, curiously, forgot her presence and wandered away as though she had ceased to exist.

The house itself was a blend of many ages and many moods, faintly oriental yet seeming characteristic of no particular place or period. It was a large, white, rambling structure with many split levels where it ran against the hill. To the right of it, a second, lower group of buildings partly cloaked by trees, suggested the presence of stables and perhaps a household guard.

As they entered the portal, Sawyer deliberately tested the material of the wall with his fingers, still vaguely refusing to believe that such seeming solidity was purely an electronic chimera and that everything he was experiencing was being drawn from the soft pulpiness of Cassius's brain. His fingers encountered stone and plaster and cement indistinguishable from the fabric of any ordinary building.

In the great, ornate hall of the house, servants were cleaning; their faintly mongoloid faces turning to Cassius with a respectful bow that trailed away uncompleted as they failed to maintain perception of the ghosts who walked among them. Cassius passed them all without acknowledgement and mounted the stairs, signaling for Sawyer to follow. She entered a suite of rooms on the first floor. Here, in a chair of woven cane, sat a little brown man so advanced in years that Sawyer could happily have believed that he was the oldest man alive.

"Chu Tsi," said Cassius in a voice slightly hushed with awe. "Master of the present House of Tsi and perhaps the most terrible of them all. His forefathers were the makers of warrior kings, but Chu Tsi is a maker of legends."

"I don't understand that."

"For centuries the sons of Tsi have been taken from their mothers at the age of five to be trained as warriors. The training is brutal and extreme, but completely effective. By the age of seven the Tsi child can ride, hunt, shoot, fish and live off the land where occasion demands. At eight, he's toughened by being put through the rigors of extremes of heat and cold and deprivation. He has to live for days without food or sleep and swim rivers with his arms tied behind his back. He has to learn such iron discipline that he will walk barefoot into fire if ordered to do so."

"The Stoics never had it so good," said Sawyer.

"At nine, he's trained to kill with every kind of weapon and with his hands. As a guarantee of his proficiency, and to ensure proper sleeping habits, two assassins are hired to kill him. Not only must he withstand them, but he must kill them both and cut from each the heart and liver and eat these publicly to prove that there's nothing within or without him of

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which he's afraid. After he has proved he's worth the trouble his education begins. It lacks nothing from any Western standpoint."

"So what makes Chu so special?"

"Oh, Chu's a man of the twentieth century. The abacus is replaced by the computer. Not for him the women in purdah and the female infants put to death. On Chu's decision, the daughters are now trained as warriors equally with the sons."

"Is that what they did to you?"

"Yes." There was pain and a great weariness in her eyes. "I was trained as a Tsi warrior. I'd killed five men by the age of ten, and there was nothing I didn't know about exhaustion and suffering. Chu is exquisitely fair—he makes no concessions of any sort because of a warrior's sex."

"Woman's lib carried to its logical conclusion?"

"Whatever hell he made of childhood, I have to admit his policy was justified. No matter in what profession they've engaged, famous or infamous, the children of Tsi have all become legends in their own lifetimes. The Tsi kingmakers have lost none of their dominance. They've merely widened their sphere of influence."

"Why did I need to know this?"

"Because I want you to know what you're up against. I don't want you to fall too soon, Martin. It would spoil my enjoyment of the game."

THE old man in the cane chair stirred and opened his eyes—eyes that even at his extreme age were as bright and penetrating as those of Cassius. His gaze lingered on Sawyer for longer than an inhabitant of the model was supposed to be able to sustain attention. The fact raised a prickling sensation on Sawyer's neck. His tidy set of mind-jaunt principles became not quite the absolutes he had thought them. Inexplicably in the old man's eyes he read a clear sign of recognition.

Chu Tsi turned to Cassius and spoke a few words in a language Sawyer could not understand. The phrase seemed to surprise her and she countered with a sharp interrogation. Chu answered softly but firmly and waved his hand as though the matter were not open for discussion. Cassius made a sign of obeisance, but it was obvious that the interview had not gone as she had planned. Finally the old man lapsed back into unawareness.

"What was all that about?" asked Sawyer.

She was looking at him speculatively, a frown of puzzlement on her brow. "Something I hadn't anticipated, Martin. But it's not important. It's just that he told me something about you."

"He knew me?" asked Sawyer, perplexed.

"That's correct, Martin. He knew who you are and why you're here. He'd asked to see you."

"That's ridiculous. He's part of

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your model—a fragment of your memory."

"That's only a partial truth. The idea of models in the mind is not new. The Tsi have known of them for centuries. Admittedly we didn't have Woulfe's mind-jaunt access, but that didn't prevent the Tsi from exploring. And that's where you've already made your first mistake."

"How do you mean?"

"I mean I've got you exactly where I want you. Not even that old fool Woulfe knew how much control I have over this model. I'm going to take my revenge on you, Martin. I'm going to punish you tenfold for what I suffered—and then go on from there."

"You're insane, Andrea."

"If you think that, Martin, you've understood nothing I've told you about myself or the Tsi. I doubt you're that stupid. But either way, the truce is ended. You've five minutes to prepare. Then the war begins."

She turned away and left him in the room. The little brown man in the chair still sat deeply in thought, as though trying to remember something that had slipped his memory. Though his eyes roved several times in Sawyer's direction, there was no evidence that he was still aware of the physicist's standing only meters from him.

"WOULFE?"

"Yes, Martin?" The psychiatrist answered out of nowhere.

"Are you monitoring this sequence? How much of it is factual?"

"Almost all of it, I'd say. There's no evidence so far that Cassius is distorting the model. What's the problem?"

"Chu Tsi. He recognized me. I'm sure of it. But this memory's ten years old—and I've never met him. How come an inhabitant of Cassius's model seems to have a life of his own?"

"There's no answer to that—except to affirm it's impossible. But I hadn't realized the Tsi had a knowledge of mind-scenes. Cassius could be more adept at controlling the model than we've allowed. Want to be pulled out while we think about it?"

"No—let it run. We'll learn a lot quicker that way."

"I've learned a lot already. She wants to punish you, but there's another idea behind that one that has to do with the Tsi. I don't know enough of the language to be able to follow all the conversation, but the phrase Chu used to her translates as 'worthy choice.' Whether worthy friend or worthy enemy wasn't stated."

"I don't get the implication," he replied.

"Nor do I. But be doubly careful, Martin. She's playing a deeper game than we imagined."

Finally Sawyer came to the opinion that Cassius was not going to return. She had given him five

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minutes to prepare. Seven minutes had elapsed and nothing had happened. Such a hiatus was curious. Becoming increasingly wary, he started to explore.

The servants cleaning the hall met him with a startled surprise that immediately trailed into forgetfulness. He walked around them, knowing that to the touch they were indistinguishable from real people, yet continued communication between him and them was impossible. They were inhabitants of Cassius's model and belonged to a place and a time of which he had no part.

The front door was closed and he approached it cautiously. The portal suggested itself as an ideal place for a trap. Opening the door revealed nothing to justify his suspicions. He stood for many seconds studying the slope of the hill and wondering what might be concealed in the dead ground beyond the edge of the bowl. Then he stepped through the doorway and the instant change of light and scene told him exactly what sort of trick Cassius had prepared for him.

She had somehow rearranged the model so that as he crossed the threshold he moved not into an adjacent mind-scene but into one removed in time and place from the scene where he had been. Suddenly he was back in London in the model of a dingy street—the scene of the incident that had been the cause of Cassius's breakdown. He should have been brought to this point later, when Cassius had been returned here under the influence of Woulfe's hypnosis. Instead she had recreated the scene herself.

She had not made a very good job of it. Whole areas, for which Sawyer could remember the details, were merely blocked grays and blacks in Dr. Cass's model. The windows were featureless. The walls trailed into a vague fusion a few meters above his head and the roads leading to the area were ill-perceived backdrops without any actual existence. Only Cassius herself was more carefully drawn. She stood against the wall exactly as he remembered, now the maturer woman he knew, with the gray streaks in her hair and a mocking venom in her eyes.

"Yes, Martin?" She was about ten meters distant and the whole scene was hushed and hollow, as though it were taking place inside a teacup. "You recognize this scene. It's where you once let me be eaten by the rats. You'd have killed me that day if you hadn't made a mistake."

"I don't deny it. But there are no rats here now."

"They're here, Martin. They always will be. But I've learned to come to terms with them. I've papered over the memory—to borrow one of Woulfe's favorite expressions."

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"Then you didn't really need me here at all."

"It was naive of Woulfe to think he could recreate the conditions of the trauma and give it a different ending. I needed you here for two quite different reasons. I want something from you that you won't be prepared to give. And I want revenge."

From the corners of his eyes Sawyer thought he detected the surface of the road twitching. He saw—or imagined—a random movement that tended to vanish when he looked at it directly. The effect bothered him, but he could not explain it. It was related to the movement of transients, but there were no transients in this part of Cassius's model. She had not observed the scene when anyone other than himself had been present. The only thing missing from the scene was a horde of carnivorous . . .

RATS

The mystery was explained. Scarcely beneath the depth of Sawyer's perception the horrifying throng of rodents still fermented. Whether Cassius was rescanning the model to a lower level, or whether the rats were permanently close to breaking back into the scene, was not important. The critical thing was that they appeared to be slowly surfacing. He could already hear their squeaking and scuffling and smell their incredibly foul stench.

Cassius was aware of their emergence and watched their progress with a fixity that suggested there was some critical value to which she would let the phenomenon develop before she intervened.

Sawyer stood with a new understanding of what the scene meant to her. What he had not before appreciated was the effect of Cassius's heightened sensitivity. Although he was familiar with the scene, he was now viewing it through her interpretation and the sheer force of her dread surged up in waves that engulfed his senses.

The stench became physically intolerable. It hit him with a nausea that left him weak on his feet. The rodents' snarling, squealing voices spoke—each with a separate, distinguishable tone. The blood lust was apparent in their eyes and in the movement of their quick, incisive jaws. Here was horror multiplied by the fidelity of its reproduction. These were the creatures who had encircled Cassius and leaped upon her and begun to feast upon the flesh of her hands and face. These were the creatures . . .

Sawyer grew worried. The scene was fully formed now. The creatures were in every sense alive and dangerous. Although the mind-scene remained, Cassius was suddenly gone. He found himself alone in the grotesque cavern of memory with hundreds upon hundreds of ravenous flesh-eating rats whose original target had withdrawn.

His own mobility was limited by

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the fact that Cassius had only an imperfect knowledge of the original place from which the scene was drawn. It was a curious sensation, knowing that one was in the analogue of a place one knew, yet finding familiar means of access were now only symbols instead of thoroughfares. Of such material were nightmares made.

The rats had become restless upon the withdrawal of Cassius. Many of them had already investigated in Sawyer's direction and now their interest grew. One leaped bodily onto his arm and plunged up the outside of his sleeve. As it reached his shoulder, he struck out in panic. For an instant the creature clung to his hand, claws gripping and teeth snapping viciously. With an urgent swing of his wrist he managed to shake it off, but not before it had bitten deeply into his little finger.

He knew then what to expect. Having tasted blood, the rat rallied from where it had fallen and hurled itself back to the attack. Others who had been undecided found this the encouragement they needed. In a living, carnivorous carpet, the whole mass of them moved towards Sawyer, anxious for the kill.

Having examined his finger, he was in no doubt of the damage even one rat could do. The fact that the vermin existed only in Cassius's mind was irrelevant. As an occupant of her world their existence for him was indisputable. There was no place to which he could run and he had no weapons he could use for his defense. His only hope of escape was to use the yet untried jump device, the bulb of which he could feel against his wrist. With turned fingers he found he could just reach the actuator. As the horrifying tide of vermin reached his shoes he pressed the button.

Fortunately it worked.

V

He found himself transferred instantaneously to a curiously forbidding place and an air of cold unreality clawed at his whole being. The new scene was alien and strange, as though the model were drawn from a world that had ever existed. The sky was not sky at all but an expanse of interminable twilight. It had no features except at one point where the white haze turned back a fiery glow, as though reflecting the presence of some demoniac furnace. Even the light had a peculiar quality, with no diffusion or scattering of illumination to the underside of leaves or grasses, producing an all-or-nothing surrealistic effect of muted tones and colors fringed with unexpected shade.

He was on a forlorn heathland covered with sparse, undernourished grass and warped and stunted shrubs. It was a wasteland that only grudgingly permitted the existence of life, then mocked it as it grew.

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"Woulfe, where the devil am I?"

"I was wondering the same thing. The jump overreached and took your cognicenter out of the model proper. What we're reading now is something out of the deep brain."

"It reads like a model."

"Emotions have to be formalized somehow. It could just be that the deep brain also uses analogue models. But don't take what you see too literally. At this mind depth you're reading emotion and instinct, not structural memory."

"Unforgiving and brutal is about the most charitable description I can offer. If that's a sample of the emotion our worst fears are confirmed. The whole place shrieks with a resentment of life."

"I warned you Cassius's cruelty was likely to be innate. This rather proves the point. Still think you can plough good soil from a granite hillside?"

"At least I'd like to look around a bit. I can see something in the valley over there that might be interesting."

"You're the eternal optimist, Martin. But you're on hallowed ground where Cassius is concerned. If she catches you probing this deep she'll unleash all hell to stop you."

The way down to the valley was a recessed and twisted track of large brown stones set in cracked, inclement clay. It could once have been the bed of a river, except that water here would have been out of character—though it might have nurtured some of the tortured flora on the banks. As he rounded a bend Sawyer found himself on the outskirts of a broken township, which occupied the valley. Massive disaster rather than time seemed to have been the agent that had torn the scene apart. Before him was desolation without parallel.

He was right in his surmise that the road might once have been a watercourse. Soon he found himself below a broken bridge—a ruined watermill hung its appendages uselessly askew over this place where no more water ran. Above the bank, depression drifted like a mist, draining out of the gray and twisted shells of the houses and shops and syphoning down the broken assemblage of a wharf.

Wonderingly he climbed to higher ground. Whatever disaster had killed the town, its finality had been absolute. No life stirred around the broken walls, nor was there any sign of clearance or rebuilding. The inhabitants who once had lived here must have long abandoned hope and either fled or given up all thoughts of reclamation.

As he moved through the broken streets he could see that one solitary building stood intact high on the hillside. This was a white, domed temple standing impressive and unscathed, as if untouched by the furies that had crushed the

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town. Here was a monument of triumph in the midst of desolation. In fact, so broadly stated was its triumph that he began to wonder if it had not also a measure of responsibility for the damage to the township around it.

He became interested in what sort of people could have lived here and what had been the nature of the disaster that had struck them. Where the damage was less than total he began to pry into broken ruins and press warily along dark, ruined hallways. The results of his investigation left him with a peculiar feeling. He saw no evidence of furnishings or interior decoration and nothing to suggest that any of the houses had ever been occupied or even completed. It was as though the whole scene had been constructed deliberately as ruins. The purpose of this gross and gigantic film-set was lost on him until he emerged back into the streets and saw the white, unblemished temple sitting in serene arrogance above him on the hill.

"For the greater glory of Cassius," said Woulfe's disembodied voice. "Who would have thought she was still a virgin?"

"What are you reading, Woulfe?"

"The symbolism, Martin. Unsullied purity set in a high place amid a sea of degradation."

"To heck with symbolism that's moulded of bricks and marble. What happens if I go up there and write obscenities on the wall?"

"I suspect you'd never make it. But the idea does have appeal. You'll be the first independent entity to have entered the territory—other than Cassius herself. But God help you when she catches up!"

"What's she doing now?"

"Hunting pretty wildly through the model looking for you. Like myself, she'd no idea you could get into her as deep as you've managed. But it's only a question of time before she finds you."

"I'm going up to the temple. I want to find out what sort of deity she imagines herself to be."

The road up the hill was weird. It was paved with granite blocks worn smooth as though it had once been a much used thoroughfare. Little gray houses flanking the way had been crushed from above, as if swiped by a godlike hand which had objected to their obscuring the view of the white edifice on the hill. The road was also strewn with rubble and timbers which there had been no obvious attempt to clear. But a narrow, winding pathway led around and past the piles of debris, as though someone still came to or from the temple. It was not clear as to whether pilgrims visited or whether the goddess herself came frequently to gloat over the totality of her powers of destruction.

As he approached the temple his objective eye found the scene even more curious. The monstrous plinth on which the place was built had

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literally been set down on the older fabric of the town and sat untidily on top of the crushed rubble. It was obviously a concept rather than a structure, and certainly it had not been sited by an engineer. The broad gap under the plinth, from which broken fragments of the older houses still showed, suggested an impatience and a petulance about its placing. Yet Sawyer judged the weight of the edifice to be about right for the degree to which it had compacted the rubble underneath. It seemed that even in the depths of Cassius's mind the principles of physics still maintained some sort of discipline.

Climbing the high edge of the plinth took a great deal of physical effort, but finally he managed it. From there on it was an easy matter to ascend the great marble steps and enter the building itself. Everything from floor to ceiling was of the same white marble and the artistry that had gone into the structure's design was unique and marvelous. The dismaying thing was that it was empty, a series of halls and corridors completely without function, furniture, decoration or any feature of interest. The ambition and imagination that seemed to have been expended in its conception had failed to a cold nothingness when given the task of elaborating the interior.

Intrigued, Sawyer toured all the major areas, feeling rather like a mouse in a series of cardboard boxes. If Cassius were a goddess here, her faith was a hollow and sterile thing. He went out by the way he had come and jumped back into the rubble surrounding the temple, searching for something with which to defile the pointless perfection of the structure.

He returned with a handful of charred wood that made a healthy if ill-defined mark. With this he went around the edifice inscribing on the walls large and obvious phallic graffiti. Then he dropped again from the plinth, chuckling hugely to himself. He was not prone to issuing graffiti, but this was a measured gesture of defiance and rebuke that had a more than common point. Besides which, it improved his spirits remarkably.

DESPITE Woulfe's prediction, Nemesis in the form of Cassius had still not descended upon him. He welcomed the continued opportunity to explore the strange scene, because here the symbols were unselfconscious and unguarded and represented a basic honesty that would not necessarily be found in the higher parts of the model which Cassius could manipulate.

A red glow in the sky caught his attention and he picked his way carefully along the little path through the ruins toward the origin of the strange redness.

From occasional mutterings through the headphones he was aware that the psychiatrist was

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following his progress on the monitors. Then he heard a grunt as though of comprehension as the bright flame in some fiery pit became apparent across the shattered landscape.

"You on to something, Woulfe?"

"We just made history, Martin. The symbolic confirmation of the great Freudian precept—the human Id."

Sawyer looked toward the embryo volcano with new respect. The ferocity of its subterranean fires became more impressive the closer he approached. Even from his present distance he could feel the ground vibrating slightly in response to its deep-throated roar. Jets of flame reared and thundered about the open rim, speaking of fantastic pressures and internal temperatures of thousands of degrees.

"Look at it, Martin!" Woulfe sounded ecstatic. "The source point of the will to live. A blast of emotions so raw and powerful that sometimes even the mind's filters can't contain it. There's savagery and madness and love and hate all in one hectic mixture. From it we have the temerity to try to distill the thin gruel we call civilized behavior. No wonder we're not very good at it. Even a saint must derive his inspiration from a very personal hell."

"Could this be the original of the hell-fire mythology?" asked Sawyer. "Has somebody been here and seen this before?"

"We know the Tsi have been exploring the mind—as have many mystics. I suspect that some drugs and toxic confusion states also give at least partial access to these regions. I think a few people may have had glimpses, but I doubt if anyone ever achieved your continuity of access."

Sawyer had stopped listening. His attention was concentrated on a low ridge that lay between himself and the Id pit. For a moment he thought he saw a silhouette moving against the skyline, illuminated by the brilliance beyond. He froze instantly, fearing that some new fiends conjured by Cassius might be waiting for him ahead. When he looked again the movement was gone, but he remained with the firm conviction that something was certainly alive among the ruins around the pit.

"Trouble?" asked Woulfe.

"I've got visitors."

"There have been no signs of life this far—at least registering here."

"Well, something moved. Is Cassius still occupied?"

"She's still hunting, but she hasn't yet gotten down to your level."

"Could be there're inhabitants here."

"A fascinating proposition. Inhabitants in the deep mind could only have a symbolic role."

"Want me to check it out?" he asked.

"It's your show, Martin. You're

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the one taking the risks."

WARILY Sawyer moved forward, keeping low against the piles of rubble and broken walls. He was nearly to the ridge before he saw the party in front of him crossing the skyline against the now-brilliant haze of fire. A man and a woman, hand in hand and completely naked, were walking steadfastly toward the pit. Immediately behind them came a second couple. All four were clean-limbed, straight and youthful—archetypes of the perfection of physical form.

Keeping out of sight, Sawyer followed them over the ridge. He need not have worried about concealment, however, because the couples had eyes for nothing but the terrible pit they were approaching. They went on as if some blind compulsion ordered them toward the flames. Sawyer was about a hundred meters behind them at this point and they were halfway between him and the hell-pit, but even from his position the ground was sensibly warm and the radiant heat from the flames was hot upon his face. It needed no calculation to appreciate that the party in front of him was already in a region of severe physical discomfort and would soon reach a point past which human endurance would fail.

Fascinated, he stopped and watched their progress. It must have been true that they felt the heat, suffered from it, were agonized and finally crippled by it—but nothing halted their progress. For the last ten meters of the way they were literally crawling over the red-hot rim, and such was the realism of the scene that Sawyer could smell the sickening stench of burning flesh, acrid in his nostrils. If there was anything further to note it was the way in which, even in the depths of agony, the lovers still held hands as they toppled, charred and burning, into the pit.

"Is that what you wanted to see, Woulfe? Me—I feel sick."

"More than I wanted to see, Martin. Cassius is also a fanatical puritan."

"How do you make that out?"

"These couples come down hand in hand from the temple through desolation into hell. You can see the path is deeply worn. To her this downward progress is an eternally continuing deal. And the consequences are, of course, unalterable."

"You can make symbolism read any way you want," said Sawyer, unconvinced. "Like leaves in a teacup. You're as likely to be reading your own prejudices as reading the symbol."

"Do you have another explanation?"

Sheer bloody-mindedness. She just likes watching people suffer."

"You're confusing cause and effect. She's punishing those over whom she has control as a token for

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a whole world that offends her moral ethic."

"I still think she's just a vicious bitch."

"We're both saying the same thing. The whole point is that what she's doing here is fundamental to her nature. Hopes of reclaiming Cassius are out."

SAWYER looked back toward the temple standing arrogant on the ruined hill. Cassius's psyche was a wasteland where the ancient schism between good and evil was continually played out as an atrocious drama. Even now he could see another pair of couples threading their way through the ruins, intent on giving themselves as sacrifice to the awful fires of Cassius's drive. There ought, he reflected, to be a comparable term to wasteland—something called wastelife—to encompass the despoliation of mankind.

"Trouble," Woulfe said suddenly. "Cassius is digging deeper. I think she suspects where you are."

Sawyer felt for the bulb of the jump button and adjusted it to within easy reach.

"How much control would she have at this mind depth?"

"Martin, you're at a very primitive level. At that depth—hell, she's the Creator!"

Sawyer released the jump bulb and stood waiting, watching with wry amusement as the white, featureless cardboard of the sky darkened with a growing storm. The whole atmosphere became tense and expectant—taut, as with the winding of some cosmic mainspring. The tension rose to the point of crisis and continued until he wondered how much more it could climb before something snapped—and exactly what would happen when it did.

"Martin!"

Cassius's voice was full of fury. It rolled across the scene like the sound of some great catastrophe. Sawyer swung around to find her only meters away and not fully formed optically. Her cognicenter refused to come to a coherent image, but hovered as a white diffusion that somehow more aptly described her anger.

"You're not supposed to be here!"

He detected undertones of shock and panic in her voice.

"Some fool must have loused up the itinerary," he said.

A black thunderbolt from nowhere shattered the ground beside him with such force that bricks and stones were crushed and the fragments grazed him as they passed.

"I could kill you for this—except that killing would be too quick an end—too mild—less than you deserve."

Her anger caused deep reverberations in the ground, like subterranean thunder. Parts of the ruins around Sawyer slipped and fell.

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"You gave me half a chance, Andrea. You wouldn't expect me to waste the opportunity." His voice maintained a reasonable calm.

Another thunderbolt burst beside him. Hurtling fragments tore at his legs and bruised his back. Overhead a great storm gripped the terrain with black pincers, while the thunder began to shake it perceptibly.

"Waste what opportunity? What have you done?"

Panic edged her voice and the scene literally shook with emotion. Many of the ruins split and were leveled, leaving the temple almost naked on the hill. The little path itself was completely obscured. Whatever the final results of the jaunt, Cassius's deep-mind model was never going to have quite the same aspect.

"Look at your temple, Andrea. See what I've done."

For a moment the white, unfocused cognicenter hovered with agitation, as if uncertain whether or not to leave him. Then like a fleeting trace of smoke it fled straight across the wasteland to the temple. Scarcely had it reached there when one great cry of anguished disbelief screamed across the artificial heavens.

"Defiled!"

THE storm broke. A mighty wind rose like a tornado from around the edges of the pit and screamed a singeing breath across the shattered scene. A cloud burst overhead and glass-hard hailstones beat the ground in cold fury and rebounded shoulder high from the startled granite.

Sawyer pressed himself against the remnants of a wall where an architrave gave him a little protection for his head. Thunder crashed and roared above and the ground itself began to heave and writhe and shake to pieces the scant protection he had contrived. The whole scene rose to the pitch of dark crescendo, an unbelievable anger that now shook him bodily and lashed and swirled and struck at him with all the physical forces at its disposal.

With the jump bulb security in his hand, he took the punishment with fortitude, curious to know how much greater were the forces Dr. Cass had at her command. Such was the fury of the storm that the whereabouts of Cassius's cognicenter could not be determined. The violent lightning that raked the ersatz sky showed the temple maintaining its arrogance on the hill. The pit was displaying its own brand of anger. A strong surge of pressures below the surface belched masses of leaping incandescence high into the air and the vibration of its raging added to the inconceivable scream of the thunder.

He wondered if the violence were inexhaustible—or whether it must falter and be followed by a period

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of relaxation. Fantastically, however, the phenomena continued to climb to an even higher key, and such was the pitch of the maelstrom now, that the impression flooded together and became one continuing barrage of noise, light and pressure from which the individual impressions could not be sorted out.

Sawyer felt his senses being swamped and knew that his physical danger had already reached acceptable limits. He therefore found the actuator on the jump bulb and pressed. In the instant that he did so, the white lace of a truly amazing lightning pulse lit the whole scene more clearly than he had seen it before. The marble temple threw the light back furiously across the subdued and terrified wastes. As he saw the scene, laughter rose to his lips and his exit was marked by a fantastic, mocking echo. For in that last moment he saw the awesome truth—Cassius's temple had split in two.

VI

"ABREACTION'S one thing," said Woulfe plaintively. "But that was an effect of quite a different order."

Sawyer's jump had terminated in what appeared to be a prison cell. A high, barred window admitted a minimum of daylight and the strong steel door had a shuttered grille through which the sound of steel-tipped boots echoed from a distant catwalk. Somewhere a truck or wagon was being pushed irregularly along an echoing corridor. These and the heat and the painted bricks of the wall were the only clues he had as to his whereabouts.

"Where am I now, Woulfe?"

"The time-depth places you in a memory about two years back. Cassius was at the height of her career then. The scene could be in any of many places using her advice."

"Wherever it is, she knew it quite well. The detail's immaculate."

"I doubt if there are many political interrogation centers outside the iron curtain she doesn't know in detail."

The sound of feet marching in unison along the walkways heralded the arrival of a military detail, which halted outside the door. After a brief pause the door was opened and a soldier in brown denims entered.

"You will come."

His voice held a trace of a foreign accent, possibly Spanish-American. Sawyer regarded him curiously. He was a creature straight out of Cassius's imagination. As with the rats, here was no typical response and forgetfulness, here was a directed purpose—a mental puppet, rather than an inhabitant of the model. Although the soldier's revolver remained at his hip he carried a heavy black stick which

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he used with pointed menace. One blow across Sawyer's shoulders convinced the physicist of the subjective reality of the guard.

Sawyer accepted the wisdom of moving toward the door. Outside, a large, glass-roofed space covered the dizzying height of seven tiers of cell blocks arranged in two rows about a central hall. The whole was entangled by a web of walkways, stairways and an occasional bridge across the span. An escort of four waited outside the door and he went meekly to them, having no wish to be knocked down even a single flight of stairs.

On the ground floor they traversed a long corridor and came to an office. As he stepped through the door he saw Cassius seated at the desk, waiting for him.

"Come in, Martin." She motioned for the escort to stay closely attentive. "This time I choose the ground. You won't get a chance to go that deep again. Needless to say, I'll make you regret every second or your last invasion into my privacies. I also know you've some sort of random jump device. What I want to know is how you actuate it. Are you going to tell me or do I have to force it out of you?"

"Why don't you work out the answer to that, Andrea?"

"I'll see you in hell first."

She motioned to the escort, who seized Sawyer's arms and dragged him to a wall where clamps had been set to hold his limbs immobile. Sweating with a sudden fear, he struggled against the restraint, but took a punch in the stomach that made him soften his resistance. However, as the clamps tightened he relaxed a little, being able to feel the comforting form of the jump bulb still safely below his palm.

Cassius borrowed one of the black sticks from the guard and came to stand in front of him. Her eyes held a disturbed and distant look, as though the storm in the deep wasteland still raged. However, there was no doubt of her intention of doing him some physical damage.

"Watch her," said Woulfe's voice. "She can't see the jump bulb because it's attached to the jaunt suit out here in the real world, but she's bound to suspect it's in one of your hands. I think she may try to break your fingers."

Although she could not have heard the conversation Cassius must have judged from Sawyer's expression that he was in communication with the psychiatrist. With a sudden snarl of anger she smashed with the stick at Sawyer's hands. Fortunately he saw the stick begin to travel, and his reaction was instinctive. He pressed the actuator and jumped. Before the scene faded, however, he saw the light of triumph in her eyes. She knew now how he controlled the jump.

SOMETHING snatched at him, slammed him to a halt. Cassius

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was mastering his jump trick. Not only was she halting its randomness—she had also learned to control his mobility. Not until the new scene crystallized did Sawyer realize the full extent of her proficiency.

The mind-twisting circumstance into which he emerged was painful and inverted. His hands were secured to his ankles and he was supported, naked, by a square iron bar passed under his knees. He was on a "parrots perch"—a favored starting point for torture interrogation in certain parts of the world.

Whether Cassius was there or not he did not know, nor did he wait to find out. Barely enough mobility was left in his fingers to enable him to grasp the jump bulb. Even as he maneuvered it to apply pressure to the actuator, something started tearing his fingers open. In a moment of superhuman effort he caught the bulb and squeezed. For an agonizing second nothing happened. The forces tearing at his fingers increased. Then, mercifully, the scene dissolved.

"That was too close," Woulfe said. He sounded worried. "She's learned to anticipate you. Next time you could be in real trouble. I'm going to have to pull you out, Martin."

"Check. Speed it up, will you, Woulfe. Another one as close as that could lose me."

"Stay out of trouble and don't attempt another jump. Withdrawal countdown is starting now."

Sawyer scanned his new environment uneasily. He found he was now in one of a series of small prison compounds or cages. Behind him was a wooden hut. On the remaining three sides barbed wire fences rose seven meters high, through which he could see row upon row of similar cages and an occasional guard tower along a distant perimeter. Overhead, a brutal sun burned from a featureless blue sky and the baking sand on which he stood tortured his bare feet every time he took a step. Examination told him that he was dressed in a loose tunic of dull gray cloth from which previous bloodstains had scarcely been removed by washing.

He swung in alarm as the door of the hut clicked open and two dark-skinned policemen in tropical uniform came out, revolvers leveled.

"Two minutes to run," said Woulfe.

The policemen hurried in his direction. Sawyer could not place their nationality, but from their features and movements he judged that these were trained and educated men. Reluctantly he raised his hands, stood and waited for the arrival of his persecutors. At all costs he had to delay for at least another minute and a half. While one of the men covered him the other brought Sawyer's arms up behind his back and fastened them with heavy manacles. A gesture with a gun precluded any need for

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speech. They waved him toward the hut.

"One minute to go," said Woulfe.

Sawyer tried to stall. He received a kick and a cuff about the head for his trouble. At the door, the crisp whiteness of a surgical coat told him that he had been right to be afraid. Cassius was waiting for him, beckoning to his escort with impatience. A loaded hypodermic syringe was ready in her hands.

"Thirty seconds, Martin." Woulfe was obviously watching his progress. The psychiatrist's voice was his only breath of hope.

"Quickly, you idiots—the sleeve!" Cassius, too, was aware that time was running out.

The policeman needed no second telling. Rather than raise the sleeve, he tore the garment apart, leaving Sawyer's shoulder exposed to the neck. As Sawyer saw the needle coming he made a desperate twist. This was largely frustrated by his other captor's forcing his manacled hands up behind his back. The movement, however, delayed Cassius sufficiently for the black wing of mind-jaunt withdrawal to beat the needle just as it penetrated the flesh.

With the blackout came a violent and instantaneous headache that made him feel physically ill. Presumably Woulfe had been monitoring the incident and had cut the withdrawal process critically short. However, Sawyer counted it a small price to pay for removal from the hands of Cassius and her hypodermic needle. What the syringe contained he would probably never know. He could imagine she would have administered a drug that would have immediately robbed him of the capacity to operate the jump control.

Wincing with the pain of his headache, he stood under the darkness of the helmet waiting for the technicians to come and release him from the jaunt suit. He was acutely conscious of the narrowness of his escape. His shoulder still registered a sharp pain where the needle had penetrated the flesh, and his heart was pumping wildly.

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Thankfully he felt hands around him, removing the packs and releasing the straps that held the helmet and secured the jump bulb at his wrist. Leaning forward he facilitated the removal of the helmet and was rewarded by a wave of light that swept in as it was lifted.

The next instant he could have cried . . .

The awful truth hit him with the force almost of a physical blow. The withdrawal—the deliverance—even Woulfe's voice was nothing but a mind-scene created by Cassius's fertile brain. In reality he was still in the helmet, still trapped in Cassius's world and she had gained the few precious moments of his inattention which she needed to render him immobile. It was a masterful trap and he had entered it without a second thought. His position was unchanged—except that somebody external to the mind-scene had removed the jump bulb from his wrist.

The scene she now presented was different and equally daunting. A bright light was focused in his face, dazzling his eyes. Around and beyond it was a blackness he was unable to penetrate. The air was hot and difficult to breathe. Something was restraining his left arm—a strong wire noose that drew tightly into the flesh as he pulled against it. He knew without trying that his right arm was similarly trapped. These were probably precalculated to rob him of the chance to break his own circuit connections on the jaunt suit.

"My game, I think, Martin," said Cassius, her triumph barely concealed in the quietness of her voice.

"Woulfe—get me out of here—"

No answer.

"Woulfe, I want out fast and to hell with the damage."

No answer.

"Woulfe—for God's sake—"

"Woulfe isn't going to answer." Cassius dimmed the light and came in front of it, a silhouette from hell against the red of the lamp. The crisp whiteness of her surgical coat made her look the epitome of pitiless efficiency. "My friends are in control of the monitoring room and of the two-mile field. You didn't think I'd let my prize be snatched away that easily?"

"The students—" Sudden understanding flooded Sawyer's brain.

"Yes, the students. Ensuring that I've complete control over the rest of the operation. Congratulations, Martin! You came closer than you knew to finding the real me. But for you the game's over. The rest of the play's all mine."

"A prima donna assumption."

"No assumption, Martin. Fact." She swung the lamp around to illuminate the farther reaches of the brick-lined cell. "Look around you. A modern interrogation laboratory, courtesy of a so-called Agency for International Development. One

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wonders what sort of world it is they want to develop. Before you condemn me as a barbarian sadist, remember the sick minds in your own society that dreamed up the instrumentation, and the sick society itself that permits and encourages its use. What you've come to hate in me are merely facets where I've excelled in playing the dirty games of your own civilization."

"What do you really want from me, Andrea?"

"Revenge for what you've done to me—and submission. I think the terms won't come readily. But I shall win in the end. Don't disappoint me, Martin. It would be a shame if you gave in too easily."

VII

WOULFE looked up as his visitor entered. No-name strode furiously into the room, threw an envelope on the psychiatrist's desk and prodded it with a cigar.

"Son of a bitch!" he said. "Know what this is?"

Woulfe pursed his lips. "Let me guess—without looking. It's Cassius's resignation."

"You're darn right it's Cassius's resignation. What are you going to do about it?"

"There's nothing I can do. I can scarcely apply persuasion to Cassius. She's the expert. Besides, I approve of her resignation. It's probably the only sane action that has come out of this whole dismal carnival."

"Approve," said No-name. He stubbed his cigar so viciously in emphasis that it hit the table and fractured lengthwise. He threw the fragments away as though its demise was a personal betrayal. "She's been nobbled again. And you're responsible."

"If you'd read her letter instead of just shouting about it," said Woulfe, "you'd note she's pregnant. I see nothing subversive in that. After all, she's a woman."

"Whose child is it?"

"Martin Sawyer's. And before you blow a gasket—let's make it plain that Cassius was not only a consenting but an insisting party."

"Hell—Sawyer and her? They gonna marry?" The unlikelihood of the prospect clearly worried the man without a name.

"You not only forgot your name—you forgot to do your homework. Cassius is a member of an ancient dynastic family called the Tsi. They don't marry. For centuries Tsi kings and warriors have harassed Asia and other parts and they've always taken concubines by force. They take only the women best fitted to contribute something to the Tsi stock. Your modern Tsi's a tough, intelligent, cosmopolitan and utterly ruthless character, trained from infancy in the arts of war and survival."

"What's that got to do with Cassius?"

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"Surplus female Tsi children used to be killed at birth. Under Chu Tsi, the present head of the family, they've entered a new age of enlightenment. Instead of killing the female children, they now train them as warriors equally with the men. Cassius is one of these."

"Son of a bitch!" said No-name, with a slight touch of awe.

"Female emancipation's produced an interesting situation. A Tsi woman can't go out and drag herself back a concubine or two. But she can select a powerful adversary, conquer him, and carry his seed back to the Tsi. You'll note the emphasis on conquest. No feminine wiles. She's one of the kingmakers. She needs to be able to enforce submission against all opposition."

"God! Is that what she did to Sawyer?"

"I don't know. Cassius's henchmen cut my monitors before matters became crucial. But knowing Martin—I doubt he put up more than a token fight. He's been fascinated by Cassius almost as much as she's been preoccupied by him."

"So how do we get her back?" he asked.

"You've no chance at all. Cassius came to the Western world and mastered one of the more discreditable aspects of our democracy. She became a legend in her own right. Now she's returning home, taking with her the seed of one of our more with-it physicists. Whichever way you look at it, Cassius has conquered."

"But a child? Damn—she could be back at work within a year."

"You miss the point entirely. Old Chu Tsi is dying. The all-male tradition having been broken, the chances are that the House of Tsi will have a mistress next, instead of a master. That's Cassius's aim. And if that happens your troubles in Asia are only just beginning."

"Whose side you on? Seems to be you've sold Sawyer down the river—and lost us Cassius."

"Actually I did neither. Cassius came back from America specifically looking for Sawyer. She'd have caught up with him sooner or later, anyway. All I did was catalyze the reaction."

No-name rose respondently to his feet and walked over to the door. "What happened to Sawyer, anyway? Did he survive the deal?"

"He acquired a lacerated back. And an enigmatic smile. You see, from his point of view he's the winner. He's got Cassius away from the persuasion scene and turned her toward the gentler pursuits of motherhood. By design or accident he's achieved what he set out to do. Whatever it cost him, I guarantee he's well pleased with the results."

"Son of a bitch!" said No-name. "That's real dedication. You never did say whose man he was."

"Not even Cassius believes it, but he really is just an innocent bystander."

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COOL AFFECTION

SONYA DORMAN

ONCE, years before—when Mrs. Crandy had been a young woman—she had paused, as she did now, at one of the numberless

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old doorways in the stony city, seeing a lump of some kind of life thrown on the top step. Some lump, some dirty sack, some abandoned life, Terran or alien, in one of the old parts of the city.

The day was the color of granite—Mrs. Crandy's pause was a brief one. Then she walked on toward the yarn shop she had owned for years. The shop was on the second floor of a fairly good building, just beyond the grim old section of the city, on the gradual slope up into decency and middle income. She'd only walked this route because it was so much shorter—in nice weather she preferred the longer way through a better area. Today's chill air made her walk fast to get her circulation going and she had tried not to look to her left or right but keep her gaze fixed on the goal ahead.

By keeping her eyes straight ahead she had gone through life without too much torment, though she had a kind heart and good friends—and she had seen a bit of the worlds, too, on various short trips here and there.

A block onward, she still saw in her mind's shocked eye the bit of bad news thrown up against a stranger's door—the size and shape of a child. She felt that she could not go back, stir the rags, expose the wounds—she could not, as everyone continually told her, befriend all the lonelys or feed all the hungrys. Like everyone else, she must attend to her own business and curl up with satisfaction inside the warm circle of acquaintances. Beyond the circle lay the madness of the universe, the hungers of an insatiable tide of running, crawling, wing-beating, slithering life.

Nor could she go on. Momentarily locked in cruel hesitation, Mrs. Crandy stood on the broken sidewalk and did nothing but breathe.

"All right, damn it," she said aloud, then glanced left and right, embarrassed—what would people think of her talking to herself in the street? But the people passed her without noticing, just as she had hoped to pass them, and it stung her, this indifference to which she herself had aspired.

Mrs. Crandy retraced her steps, almost literally, keeping her eyes down and imagining that she was stepping backward into her own footsteps.

The shape still lay huddled in the doorway. One small green plastic sandal was visible, containing what appeared to be a human foot. Still, one never knew, she thought. One never knew what rose up above the recognizable; alien shapes and brains, weird entities convinced of their own rightfulness and rights, hostile teeth and bad breath reeking of awful dinners.

Mrs. Crandy slowly went up the five stone steps and leaned over but tried to keep her face out of reach, like a swimmer who does not want

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to get water up the nose. No telling, she thought, what the creatures would do if startled, perhaps reach up with talons and damage her.

"Child?" she said, for that was how it looked.

The lump stirred, a second green plastic sandal emerged from the rusty folds, a spine moved and at the top of the spine a head rose. Rather small, crinkly black eyes looked at her. A small pink mouth opened into a big yawn and she could see the child was missing some teeth. Whether it was teething normally or whether it suffered tooth rot from malnutrition, she couldn't tell.

"Do you live here?" Mrs. Crandy asked. She really did not know how to approach a conversation like this, though she was aware of the dangers of patronizing the young of any life form.

"Naw," the child said, stirring even more, then getting to her feet.

"Have you no place to sleep?"

"Was sleepin' here. Name's Agnes. What's yours?"

"Do you have a home?" Mrs. Crandy asked. The child's clothing, a coatlike dress tied around the waist by a cloth belt of some other fabric, was rotting and gone in the seams. Under this shapeless robe, she could tell, the child was like a stick.

"Naw. But I bet you do. Lady, you got a nice home?"

"When did you eat last, Agnes?"

"S'mornin'. Piece of lemon pie."

"Lemon pie!" How like a child. But she must have stolen it, Mrs. Crandy thought immediately. It must have been the only thing she could get her hands on.

"COME on," Mrs. Crandy said. "I have to go to my shop. You come with me and we can have lunch together."

"Naw."

"Why not?"

"You'll feed me but you'll call authorities."

"They won't hurt you," Mrs. Crandy said, sighing. "What can they do that will make things worse for you than they are?"

"They'll brick me," Agnes said.

In spite of the quaint phrasing, Mrs. Crandy understood perfectly, with a kind of cold gelling of the heart's blood. They'll brick me. Indeed they would, she knew. Bowls of soup and clean cotton dresses wouldn't compensate Agnes for being shut up.

"I won't call them, but come to the shop and get warm, and we'll eat something." She was getting thoroughly chilled, standing here, arguing with this irresponsible but apparently satisfied child. Oh, she can't be satisfied, Mrs. Crandy corrected herself, not in that crummy dress, and so thin, and her hair matted. The hair was nearly white; flaxen; though it was now darkened with soot and less nameable dirt. The whole small creature seemed ineffably soiled.

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Agnes shook the folds of her robe and took a step down, then looked back, archly, over her shoulder and upward to Mrs. Crandy's face. "Promise?" she asked.

"I don't promise a thing, but you're free to go any time," Mrs. Crandy said, stepping down beside her. For a moment she wanted to hold the girl's hand, but had a notion it would feel chapped and scaly with dirt and the gesture would probably embarrass them both. They went along the sidewalk together, the child taking quick, short steps.

When they passed a Ganymedean restaurant, with its windows frost-laced on the inside, Mrs. Crandy averted her face as a kind of courtesy, more than a recoil, but Agnes hung back and peered in with a terrible, devouring curiosity. The Ganymedean restaurant owner came to the icy glass door and, with his one thumb and two fingers at the end of a tentacular arm, pulled down an inside shade against Agnes' prying face. Serves her right, Mrs. Crandy thought involuntarily.

"They're snobs," Agnes said. "Great bulby-ho snobs."

Mrs. Crandy was amused in spite of herself. "Wherever did you get that?" she asked.

"I been around," Agnes said smugly.

Well, I bet you have, Mrs. Crandy thought. She asked, "Where are you from?"

"I'm from where you found me. Sleepin' on the step."

"No, seriously," Mrs. Crandy argued. "You must be living somewhere, even if you don't have a family. Not all the time in the street. Isn't there anyone who would worry if you didn't show up?"

"Plenty people," Agnes said in such a tone of rage that Mrs. Crandy knew no one cared. "Everybody loves me," Agnes shrieked. The sound, sharp as a toothpick, pierced the cold, sullen air and even the hides of a few passersby, who looked around. But Agnes clamped her mouth shut.

Mrs. Crandy, her heart gaping, took hold of the child's hand. She'd been right—it was chapped, lumped with dirt and spoke of painful neglect. No, I will not lose my head, Mrs. Crandy promised herself and her absent friends and advisors, but neither will I just abandon her in the street. There must be a sensible middle way. Even if I only get her cleaned and warm. I won't even think beyond that.

Agnes grew silent as they came to the better part of town, as they entered the doorway between shop fronts, climbed the flight of stairs, and as Mrs. Crandy unlocked the door of her shop.

"Oh," Agnes said when they entered. The yarns lay in their slots, orange, yellow, rust, gold, chocolate; green, aqua, turquoise, baby blue, cobalt. Hundreds and

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hundreds of skeins of yarn. The walls were hung with petit point and crewel patterns—there were shelves devoted to small looms and weaving material. Agnes turned around, dazzled, her mouth open.

"What pretty," Agnes said, around and around, glaring with joy and surprise. "Oh, what pretty," she said.

"Let's get you washed," Mrs. Crandy said. "Then, if you like, I'll teach you a knitting stitch and you can pick any color yarn you like."

Getting scrubbed did help, but not as much as she'd hoped for. Apparently the child's skin had suffered real damage, because it remained rough, lumpy, almost scaly. Under the robe Agnes wore only a shabby bikini. Her small, skinny body had a serpentine quality, like that of a dancer's; she might have been pretty if cleaned better than Mrs. Crandy could do in the tiny washroom. But the face was so pointed, the eyes so small and crinkly, the neck so long and flexible, she would never be pretty. It doesn't matter, Mrs. Crandy told herself. What difference does it make? As if looks lasted. The child's been abused and starved; all I can do is try to put a little comfort on her bones, nothing more than that.

Mrs. Crandy hated to put the dirty robe back on Agnes but there was not a thing in the shop to be used as a substitute. At lunch time she'd go round the corner and buy

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Agnes a pair of slacks and a good warm sweater. She turned up the heat and sat at her desk.

Agnes leaned over, looking at the desk calendar.

"Last day of March," she said. "Come April, come May." She looked sideways at Mrs. Crandy. "You here in the hot?"

"The shop's open all the time, except for two weeks in August when I like to go to the beach. Why?"

"You got a cooler, huh?"

"Yes." Mrs. Crandy smiled. "But it's so cold today—you can't be worried yet about summer weather."

"I worry all the time," Agnes said suavely. "I worry and worry, it keeps the brain going."

"Nonsense. Worrying makes you skinny and old before your time. Speaking of old, how old are you?"

Agnes looked down at her green plastic sandals. "I suppose you wouldn't believe me, fifteen."

"No," Mrs. Crandy said shortly. "Go and pick out any color of yarn you like and I'll show you how to knit. Then I have work to do and customers will be coming in."

Agnes did not spend long in choosing. The pale blues, the grays and silvers, seemed to appeal to her. Mrs. Crandy was delighted at how quickly Agnes learned to handle the needles, how her thin fingers manipulated the pearl-gray yarn. Agnes sat on a wooden chair in the far corner, concentrating, her head down, matted flaxen crown exposed to Mrs. Crandy's gaze. She was so small and so slippery looking, Mrs. Crandy thought. No, I cannot feed them all, but surely I can do a few little things for this one. She bent to the books on her desk.

Now and then she heard Agnes mutter. Once, she was sure she heard: "Bulby snobs, old tentacles," and wondered, sadly, what or who had inculcated these archaic prejudices in the child.

THE heat, silently rising in the walls, silently spreading its wooly shawl through the shop and over Mrs. Crandy's chilled shoulders, should have made the child snuggle and relax. Although Agnes was obviously slowing down, perhaps falling into a daydream, she did not look comfortable. Mrs. Crandy was distracted from her by a customer coming in to match a particular color. When the customer had gone Mrs. Crandy looked at the corner and saw Agnes sitting with a kind of tense sloppiness, her eyes wide and staring.

"Child!" Mrs. Crandy said, alarmed. Agnes should be comfy, approaching happiness and satisfaction. The possibility that Mrs. Crandy was harboring some one of those unfamiliar and alien forms often passed in the street, coiled through the woman's mind with a bizarre writhing motion. She condemned her reactions, her feelings,

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as immoral and unworthy. Because even if Agnes were not a human child, she was a child just the same, hungry for attention, for affection, for warmth. No matter what she was, Agnes, like everyone, had needs. It was Mrs. Crandy's responsibility, she knew, to try to find out what they were and to try to supply them as well as she could.

When she went to Agnes, she saw a single tear slop over the corner of the child's left eye. It was pearly gray—it was tangible. It seemed to have a mineral substance—and was terrifying.

"Oh, God," Mrs. Crandy said. "What is it—what is it? What's wrong?"

"Lift me," Agnes said through almost motionless lips.

As Mrs. Crandy bent to lift Agnes the tear fell from the child's face and struck Mrs. Crandy's bare wrist. It bounced off her skin, cold and stern as a hailstone. "Dear God," Mrs. Crandy implored, lifting the sluggish body in her arms. "Agnes, try to tell me what's wrong."

"Blood," Agnes said through her rigid lips. "Homeostat. Not like yours. Get me cold."

Mrs. Crandy wasn't sure what homeostat was, but she understood cold. She carried Agnes back to the washroom and ran ice water into the basin. Moving with terrible effort, Agnes put her hands into the cold water and sighed. She got wet to the elbows, and after a minute, put her face down and poured water over it.

Her face rose, dripping. "Wanted warm like mother," Agnes said, her tongue stiff. "Wanted you to feed me. Lady, I wanted bad." She doused herself again, ran cold water on her neck, drank many mouthfuls of it and slowly revived.

"Agnes, shall I turn off the heat? Will that help?"

The child stood with rivulets of cold water running down from her wet hair. "No, lady, make you cold."

"What can I do?"

"Nothing. I do it." Agnes turned around and shuffled out of the washroom, across the carpet, to the door of the shop. She muttered, "I wanted bad."

When she opened the door, Mrs. Crandy ran to her, pulled her back. "You can't just go back to the street out there, you can't sleep in doorways on cold stone."

"Sure can. Keep me goin'. Come May, come June, I'm goin' to suffer, I guess."

"Look, I've turned down the heat. I'll put on my coat. You stay here and try to tell me."

"Tell you nothin'. You been nice and I liked it. But you don't wanna know." Agnes made some gesture with her arm toward the door. Her forelimb rippled in a strange fashion, and in her mind's shocked eye, Mrs. Crandy saw again the Ganymedean tentacle come out and pull down the restaurant shade.

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"Before you go, Agnes, will you answer a question?"

"If I can do."

"Who is, or was, your father?" asked Mrs. Crandy.

The crinkly black eyes gazed unwinking at her. The air in the shop was cooling rapidly and Agnes was growing more sprightly. "Hit you, didn't it?" Agnes said, showing the gaps in her teeth. "You don't know what is a homeostat, do you?"

"I think I do. It controls body temperature. As in Ganymedeans, who do not function in warmth and keep to a cold environment."

"As in you," Agnes said. "Yours changes to suit weather. I guess you know what luck is. See, in me, it don't work like my mother. I just try to keep me cool."

"You can't be one of a kind, Agnes. There must be comfortable places for others like you."

"Sure. Been there. Busted out. Father's kind say poo, funny, with hair. Mother's like you. So I keep me myself."

"I'll open the window and it'll be cold enough in here." Mrs. Crandy still wanted to try, although she knew, beyond hope, there was nothing she could do for the needs of the child—she was incapable of supplying balm for them.

"Naw. Lady, you been nice and I dreamed it would work but it don't work. You goin' to get awful cold, see, and I don't want to be responsible. Got enough keepin' me."

"No, damn it," Mrs. Crandy said, "it's not enough for any of us, just keeping ourselves. I can wear warm underwear and several sweaters and I'll take you to a good medical center where they must be able to help you."

"Help." Agnes chewed the word. "I been there. They brick me. I told you."

Mrs. Crandy saw it, all right. Agnes strapped into a technical chair, being probed, her brain waves recorded, her blood temperature monitored. Living under a plastic sky, poked and stared at—bricked. Agnes, the universal unwanted child, Agnes, who knew better than she, Mrs. Crandy, with all her worldly experience, just how the world treats its human bastards, and does not even recognize its alien disasters.

"I'd like to give you something," Mrs. Crandy said.

Agnes looked around the shop. "Knit?"

"Yes, of course." Mrs. Crandy put the needles and pearl gray wool into a bag and gave them to the child. Agnes looked into the brown paper depths. "Nice," she said. "Goodbye, lady. I remember you. Can't do no else."

"Goodbye, Agnes," Mrs. Crandy said.

Agnes opened the door and stood there. "Lady," she said, "just I ask you. You see me sleepin' on a step, don't try to warm, okay?"

"Okay," Mrs. Crandy said and watched the shop door close.

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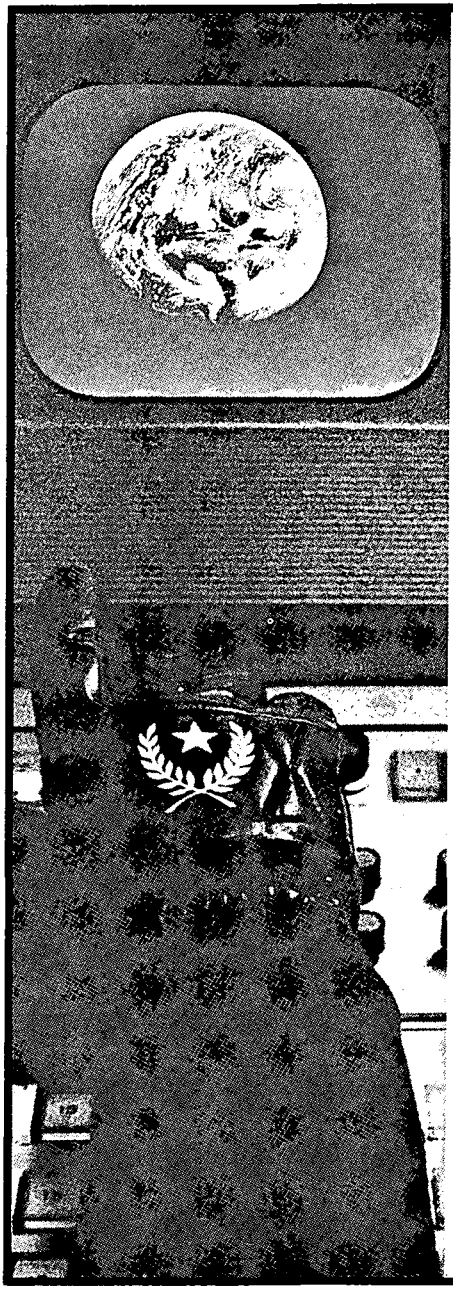

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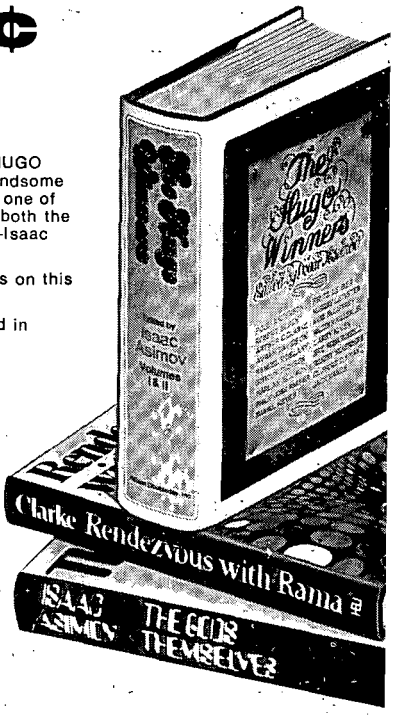

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